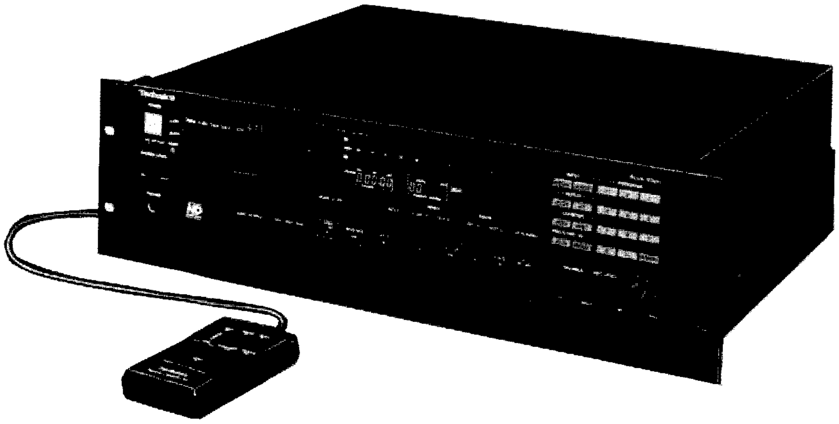
ORDER NO. AD8901016C2

Service Manual

Digital Audio Tape Deck

SV-360



Color

(K)... Black Type

Area

Country Code	Area	Color
(E)	Continental Europe.	(K)
(EB)	Great Britain.	(K)

SPECIFICATIONS

Signaling Format

Tape recording system:	Rotating head type DAT
Sampling frequencies:	
For recording:	48 kHz (analog/digital input) 44.1 kHz (analog input) 32 kHz (digital input)
For playback:	48 kHz/44.1 kHz/32 kHz (selected automatically)
No. of quantizing bits:	16 (linear)
No. of channels:	2 (stereo)

Audio Parameters (Recording and Playback System)

Frequency response:	
For 48 kHz:	10 Hz~22,000 Hz (±0.5 dB)
For 32 kHz:	10 Hz~15,000 Hz (±0.5 dB)
Dynamic range:	90 dB or more
For playback:	96 dB or more
S/N Ratio	93 dB or more
Total harmonic distortion:	0.05% or less (1 kHz, input/output level+4 dBm)
Wow and flutter:	Below limit of measurement

General

Power supply:	110 V/127 V/220 V/240 V AC, 50/60 Hz
Power consumption:	40 W
External dimensions: (W×H×D)	43×11.5×34 cm
Weight:	7.5 kg

Input/Output Jacks

Analog input level/ Input impedance:	+4 dBs (−18 dB rec level)/ 10 kΩ
Analog output level/ Output impedance:	+4 dBm/−10 dBm (−18 dB)/ 20Ω/135Ω
Phones output:	Max. 30 mW/32Ω (matching impedance 8~600Ω)
Digital input jacks:	Coaxial/75Ω,
Digital output jacks:	Coaxial/75Ω,

Mechanism

Heads:	Amorphous ferrite composite type
Cylinder diameter:	30 mm
Cylinder rotation speed:	2000 r.p.m. (recording and playback)
Tape speed:	8.15 mm/sec, 12.225mm/sec (selected automatically)
Search speed:	Max. 200 times normal speed
Fast forward winding time:	Approx. 40 sec

Note:
Specifications are subject to change without notice.
Weight and dimensions are approximate.

Technics

Matsushita Electric Industrial Co., Ltd.
Central P.O. Box 288, Osaka 530-91, Japan

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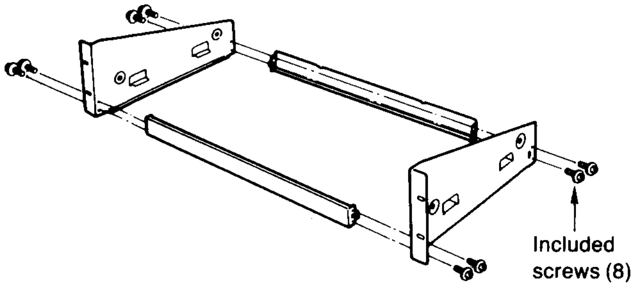
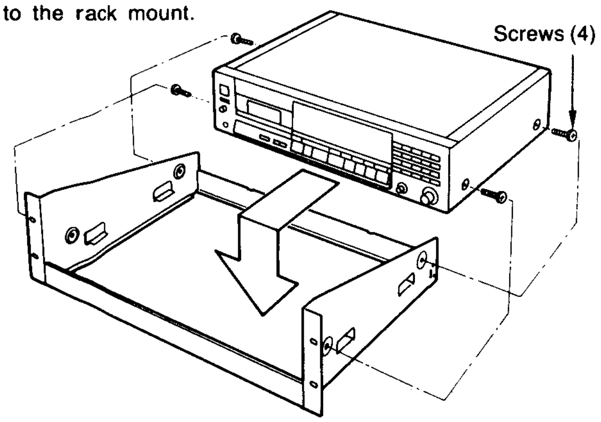
■ INSTALLATION

Installation of rack mount kit

1. Assemble the rack ears and panel, and tighten with included screws.



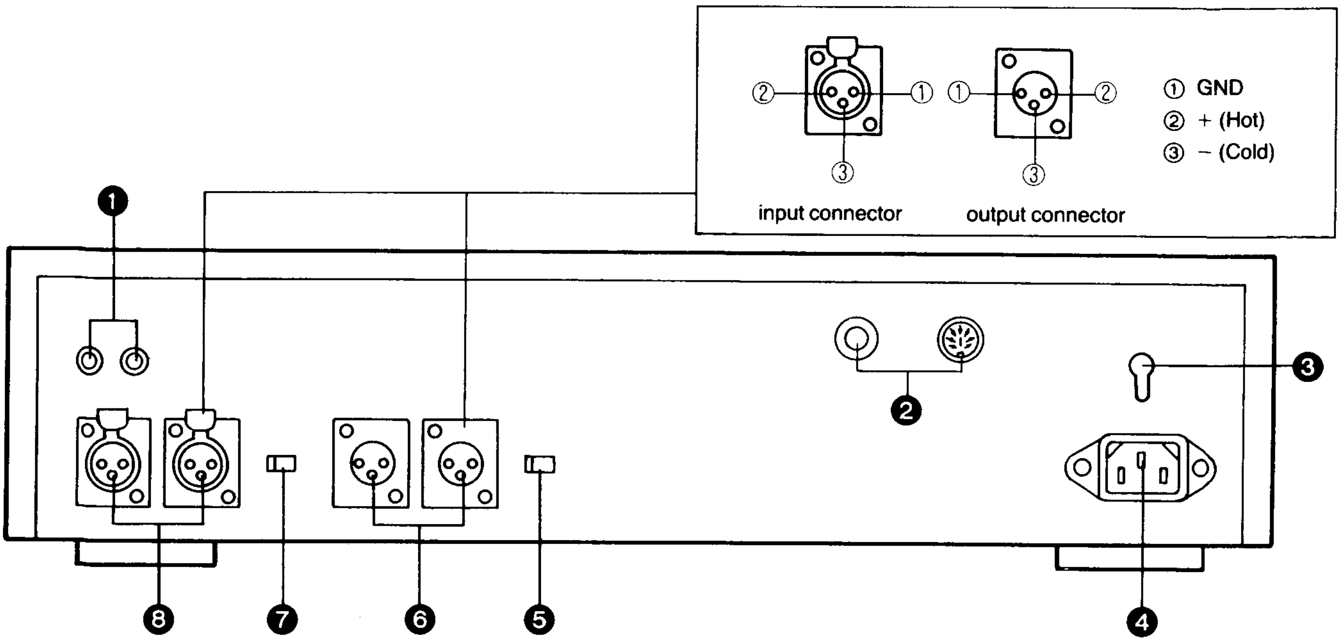
2. Remove the 4 screws on side enclosure, and attach the unit to the rack mount.



Notes on placement

- ■ **Place on a flat, level surface so that the front-rear inclination does not exceed 15°.**
- ■ **Avoid places such as the following:**
- •Near any equipment or device that generates strong magnetism.
- •On any heat-generating equipment or device, or in any place where the temperature is high (40°C or higher).
- •Extremely cold places (5°C or below).
- •Near a tuner or TV
  (It may cause noise in the broadcast, or disturbance of the TV picture.)
- •For long periods of time in direct sunlight.
- •In dusty or smoky locations
- •In locations prone to vibrations.
- •In locations where the rear panel is less than 10 cm away from the wall or back of an audio rack.
- •Within reach of children.
- ■ **Do not place heavy objects, other than system components, on top of the unit.**
- ■ **When carrying or storing the unit, handle it with care so it is not subjected to any strong bumps.**
- ■ **To avoid problems due to vibration.**
- •Do not place a book or similar object under this unit.
- •Do not route the connection cables (of this or other units) across the operation panel, across the top, or under the unit.

■ CONNECTIONS



❶ COAXIAL jacks (IN/OUT)
These terminals are for input or output of digital signals.

❷ REMOTE CONTROL jacks (SERIAL/PARALLEL)

❸ VOLTAGE adjustor (VOLT ADJ)
Select the voltage setting for the area in which the unit will be used. (110 V/127 V/220 V/240 V)

❹ AC IN jack
Connect to the grounded AC outlet with the included AC power supply cord.

❺ LEVEL selector (+4 dBm/−10 dBm)
Select the nominal output level (when the peak level meter shows −18 dB).

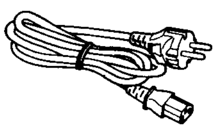
❻ ANALOG OUT terminals
These are balanced XLR analog audio output connectors.

❼ SAMPLING FREQUENCY selector
Select the sampling frequency when making analog recordings. (44.1 kHz/48 kHz)

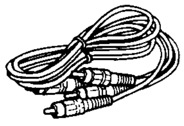
❽ ANALOG IN terminals
These are balanced XLR analog audio input connectors.

■ ACCESSORIES

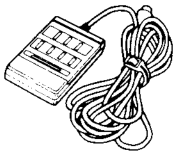
- AC power supply cord 1
  (RJA0003−K) . . [E] area.
  (SJAD8) . . . . . . [EB] area.



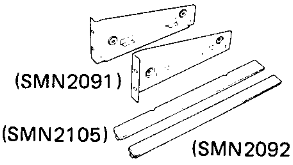
- Coaxial cable .. 1
  (SJPD19−1E)



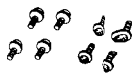
- Wired remote control unit 1
  (RAK0001A)



- Rack mount kit 1



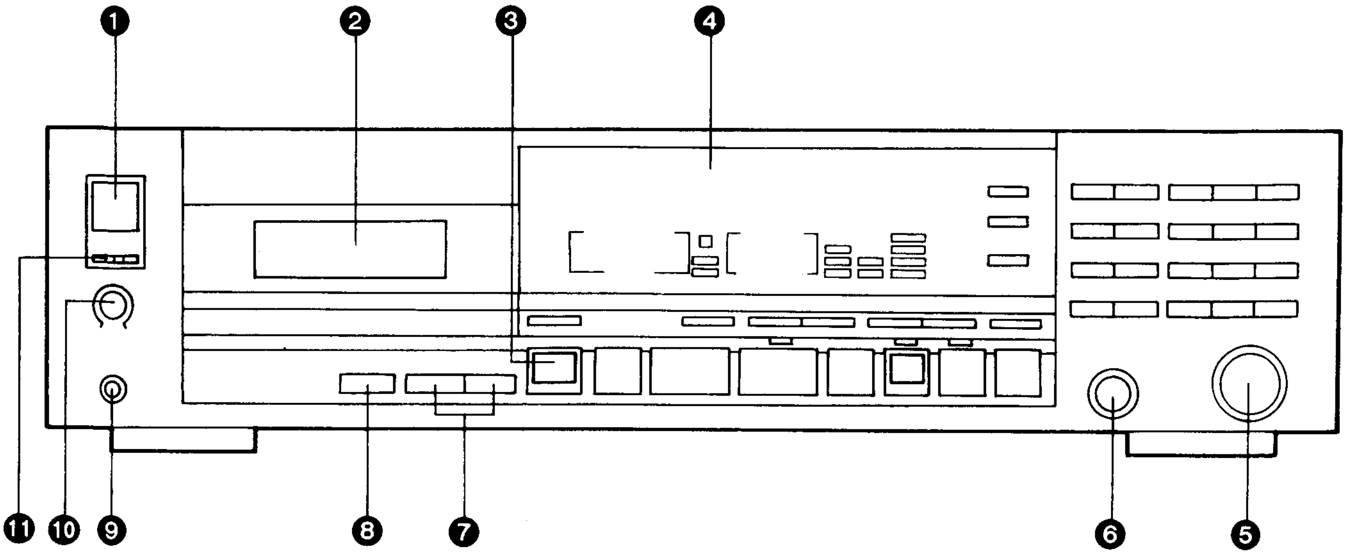
- Screws 8
  (XYN3+F10 FZ)



Note: Configuration of AC power supply cord differs according to area.

■ FRONT PANEL CONTROLS AND FUNCTIONS

Front panel



❶ **POWER switch**

❷ **cassette holder**

❸ **OPEN/CLOSE button (⏏)**

❹ **display**

❺ **REC LEVEL control**
Use to adjust the recording level.

❻ **REC BALANCE control**
Use to adjust recording balance between left and right.

❼ **SKIP buttons (⏮ • ⏭)**
Use the skip buttons to advance to the desired program.
The ⏭ button skips the program forward
The ⏮ button skips the program backward

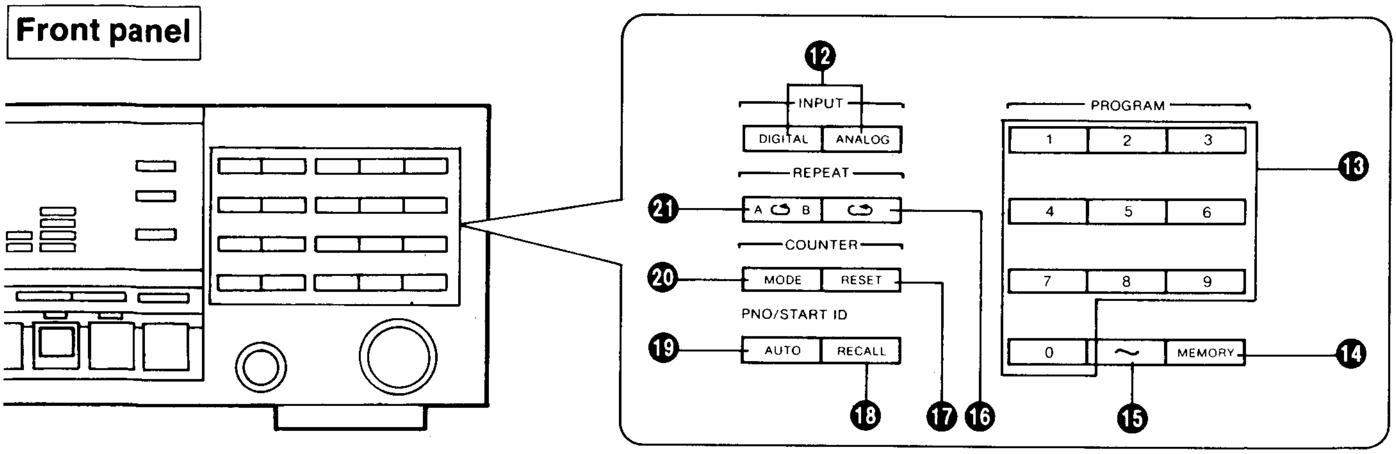
❽ **END SEARCH button**
Use to advance at high speed to the end of the recorded portion of the tape.
Use also to continue recording from the last recorded position, or to find the total number of programs or total time recorded on the tape (in the case of tapes where absolute time and program numbers have been recorded).

❾ **PHONES jack**
A ¼" connector for standard stereo headphones.

❿ **PHONES LEVEL control**
Use this control to adjust the output level to the headphones.

⓫ **TIMER selector**
Used to automatically begin playback or record when the unit is connected to an AC line timer. Setting this switch to "REC" or "PLAY" causes the unit to switch to record or playback mode as soon as AC power is applied.
If a timer is not used, leave this switch in the "OFF" position.

Front panel


⑫
INPUT
DIGITAL
ANALOG
REPEAT
A ↺ B
↺
COUNTER
MODE
RESET
PNO/START ID
AUTO
RECALL
PROGRAM
1
2
3
4
5
6
7
8
9
0
~
MEMORY
⑬
⑭
⑮
⑯
⑰
⑱
⑲
⑳
㉑

⑫ INPUT selector button

Use to select digital or analog recording input.

⑬ PROGRAM buttons

Use to select program numbers, to cue to a desired track, etc.

⑭ MEMORY button

Use to program a random playback sequence.

⑮ continuous memory button (~)

This button is used to reduce program steps needed when consecutive programs are to be played during a random sequence (e.g. 2~5 instead of 2, 3, 4, 5).

⑯ REPEAT button (↺)

Use to repeat playback of a tape or a programed sequence.

⑰ COUNTER RESET button

Use to reset the tape counter to "0000" (when the display mode is set to tape counter).

⑱ RECALL button

Use to display and check program numbers which have been memorized.

⑲ AUTO button

Use to automatically record program numbers or start ID's during recording or indexing by detecting the beginning of signal after a blank position.

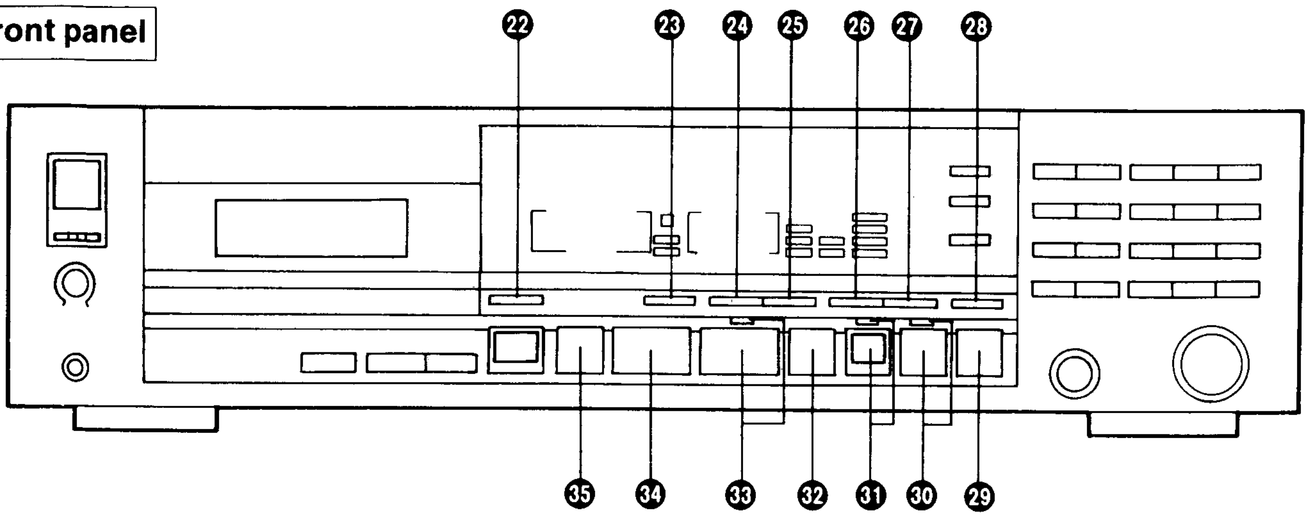
⑳ COUNTER MODE button

Use to select the desired counter mode.
(absolute time, program time, tape counter)

㉑ A–B REPEAT button (A↺B)

Use to repeat a portion of the tape between A and B.

Front panel



㉒ MUSIC SCAN button

Use to play back the beginning of each recorded program on the tape for about 9 seconds.
This is useful for quick identification of program contents.

㉓ INDEX button

Indexing allows certain subcode data which has been recorded on the tape to be changed with no effect to the actual program recording.
With this unit, the following types of indexing are possible.

1. Recording or erasure of start ID's at the beginning of a program
2. Recording or erasure of skip ID's
3. Renumber function

㉔ START ID/WRITE button

Use to record start ID's in indexing. Can be done automatically or manually as desired.

㉕ SKIP ID/WRITE button

Use to record skip ID's in indexing.

㉖ START ID/ERASE button

Use to erase start ID's recorded in indexing.

㉗ SKIP ID/ERASE button

Use to erase skip ID's recorded in indexing.

㉘ RENUMBER button

Use to assign program numbers (01, 02, 03...) to start ID's recorded in indexing.

㉙ AUTO REC MUTE button (○)

Use to automatically insert a silent space approximately four seconds long during a recording.

㉚ PAUSE button/indicator (❚❚)

Use to temporarily interrupt playback or recording.

㉛ REC (record) button/indicator (●)

Use to put unit in record standby mode.

㉜ FF/CUE (fast forward/cue) button (▶▶)

Use to advance the tape rapidly or for audible high-speed search (cue).

㉝ PLAY button/indicator (▶)

Use to initiate recording or playback.
Use also to record program numbers manually.

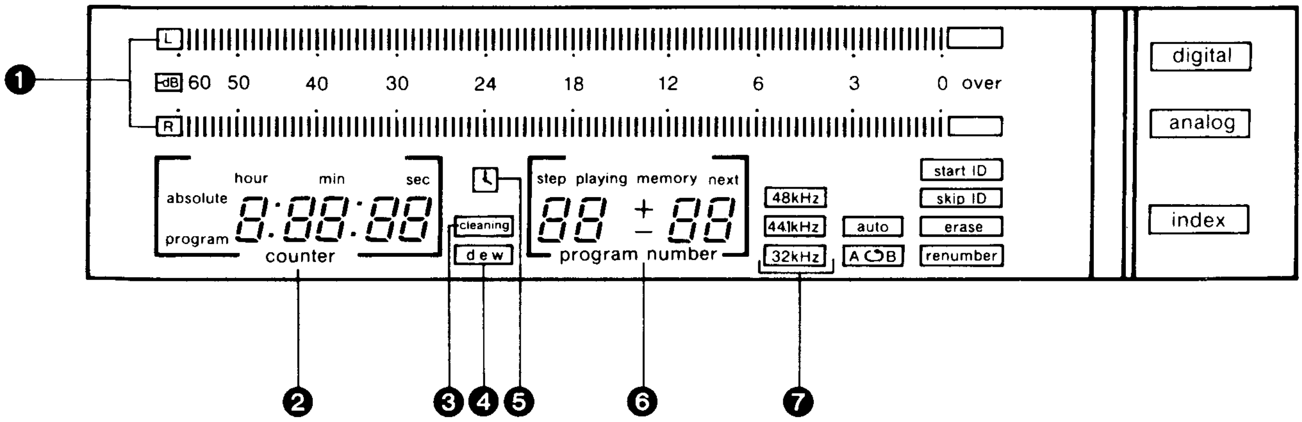
㉞ STOP button (■)

Use to stop all functions.
This button also clears the program memory.

㉟ REW/REV button (◀◀)

Use to rewind the tape or for audible high-speed search (review).

Display panel


L
dB 60 50 40 30 24 18 12 6 3 0 over
R
hour min sec
absolute
program
counter
8:88:88
cleaning
dew
step playing memory next
88 ± 88
program number
48kHz
44.1kHz
32kHz
auto
A ⟲ B
start ID
skip ID
erase
renumber
digital
analog
index
1
2
3
4
5
6
7

① peak level meter

Recording level in recording and playback level in playback are indicated by a bar graph.

② counter display panel

The following are displayed according to the setting of the counter mode button:

1) absolute time
   This display is always shown when power is first switched on.
2) Program time
3) tape counter

③ cleaning indicator

Indicates when it is time to clean the heads.

④ dew indicator

Indicates the formation of dew.

⑤ timer indicator

Indicates timer switch is on.

⑥ program number display

(display changes depending on operating mode)

1) step playing
   (program sequence/tune playing)
2) memory next
   (memorized tunes/next tune)

⑦ sampling frequency indicators

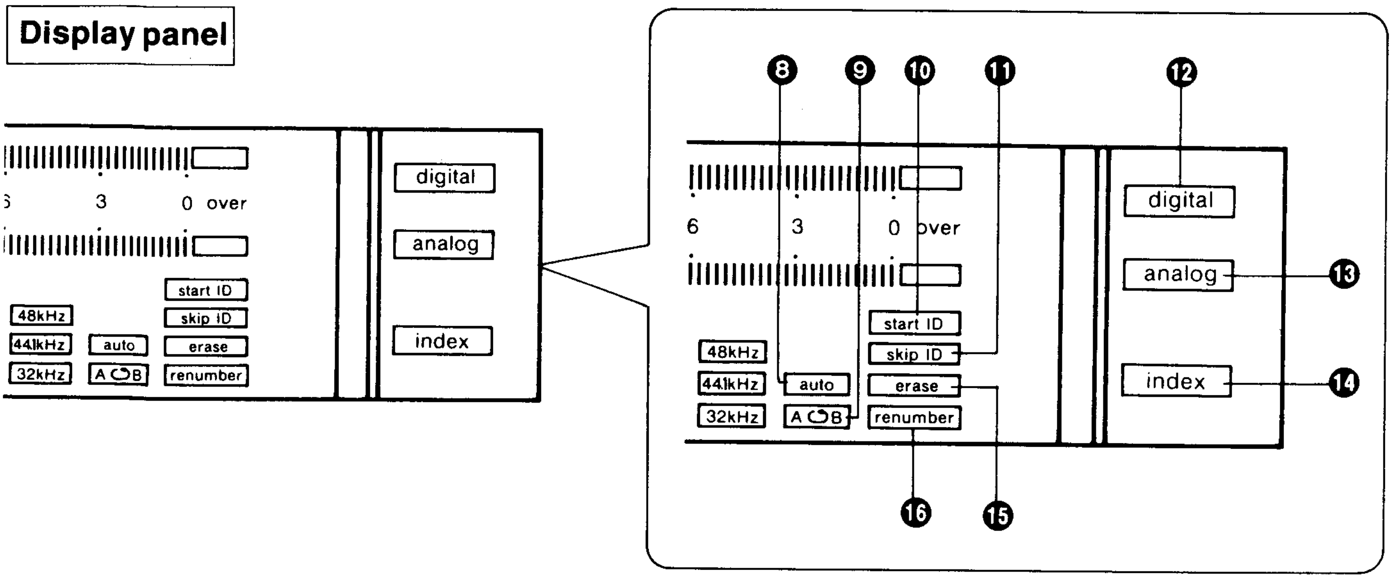
Display sampling frequency of digital signals during recording or playback.
Changes automatically depending on input signal.

■ Relation between digital recording and sampling frequency

(when digital signals are input to the digital terminals on the rear panel)

Signal input	Sampling frequency indicator	Digital recording
Digital signals with 48 kHz sampling frequency (tapes recorded with analog input and commercial DAT music tapes which are not subject to copyright laws)	48kHz	OK
Digital signals with 48 kHz sampling frequency (commercial DAT music tapes subject to copyright laws)	48kHz	NO
Digital signals with 44.1 kHz sampling frequency (commercial DAT music tapes or CD, etc.)	Depends on user conditions	NO (44.1 kHz signals are only for playback)
Digital signals with 44.056 kHz sampling frequency (recorded digitally on a videocassette with PCM processor)	Depends on user conditions	NO

Display panel


⑧
⑨
⑩
⑪
⑫
6
3
0
over
48kHz
44.1kHz
32kHz
auto
A⟲B
start ID
skip ID
erase
renumber
digital
analog
index
⑬
⑭
⑯
⑮

⑧ auto indicator

Indicates that a program number and a start ID can be automatically recorded by sensing the beginning of incoming signal.

⑨ repeat indicator

This indicator is used both for repeat and A–B repeat functions.
Indicates that all programs or memorized programs can be played back repeatedly (⟲).
Indicates that the tape portion between A and B can be played back repeatedly (A⟲B).

⑩ start ID indicator

Indicates that a start ID is being or has been recorded.

⑪ skip ID indicator

Indicates that a skip ID is being or has been recorded.

⑫ digital indicator

Indicates that digital signals can be recorded.

⑬ analog indicator

Indicates that analog signals can be recorded.

⑭ index indicator

Indicates that indexing can be performed.

⑮ erase indicator

Indicates that a start ID or skip ID is being erased.

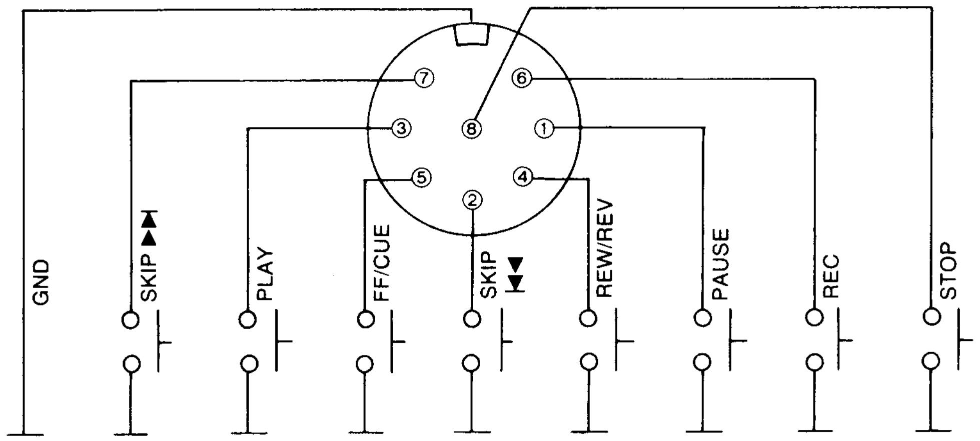
⑯ renumber indicator

Indicates that program numbers are being assigned.

■ REMOTE CONTROL

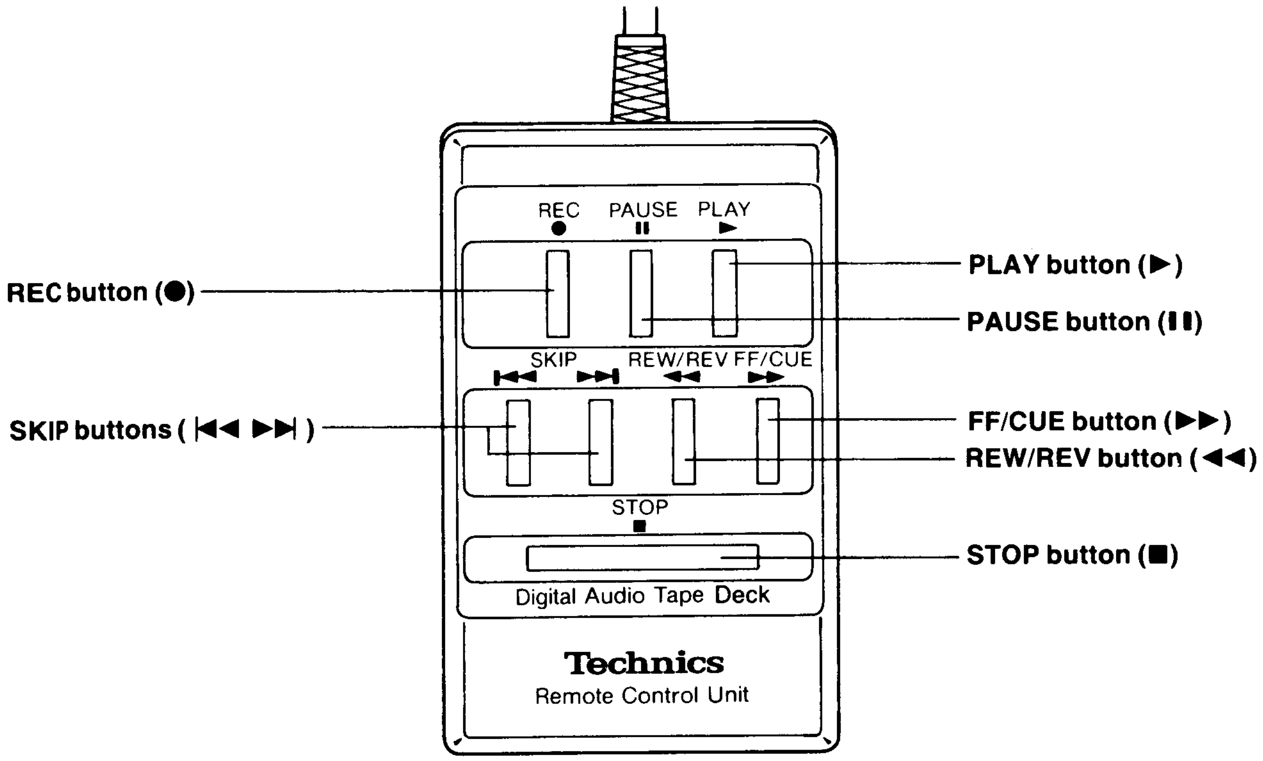
This unit has 2 systems for remote control operation using either parallel input terminals or serial input terminals. By connecting the following circuits or inputting a signal, the unit can be operated by remote control.

Parallel Input Terminals



⑦
⑥
③
⑧
①
⑤
④
②
GND
SKIP ▶▶|
PLAY
FF/CUE
SKIP |◀◀
REW/REV
PAUSE
REC
STOP

Wired remote control unit (included)



REC ●
PAUSE ❚❚
PLAY ▶
SKIP |◀◀ ▶▶|
REW/REV ◀◀
FF/CUE ▶▶
STOP ■
Digital Audio Tape Deck
Technics
Remote Control Unit
REC button (●)
SKIP buttons (|◀◀ ▶▶|)
PLAY button (▶)
PAUSE button (❚❚)
FF/CUE button (▶▶)
REW/REV button (◀◀)
STOP button (■)

Serial Input Terminals

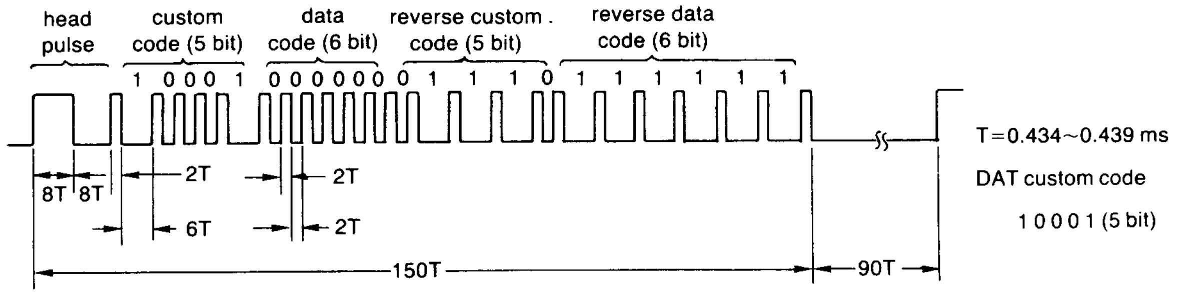
■ Input signals

The unit can be controlled by entering signals (pulse series) 3 times repeatedly. This signals can be made by converting the data code (000000) and the reverse data code (111111) in the pulse series shown below into the data codes corresponding to the desired function (see table below).

In the case of this unit, custom codes and reverse custom codes are each fixed at "10001" and "01110" respectively. Unless specified otherwise, the codes are set at the "L" level.

These signals can be generated by a computer, and can be used effectively for DAT by connecting to an operating system.

<Pulse series for the Stop function>

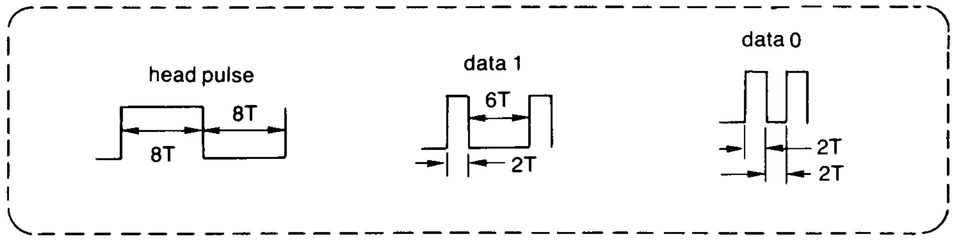


head pulse
custom code (5 bit)
data code (6 bit)
reverse custom code (5 bit)
reverse data code (6 bit)
1 0 0 0 1
0 0 0 0 0 0
0 1 1 1 0
1 1 1 1 1 1
8T
8T
2T
6T
2T
2T
150T
90T

T=0.434~0.439 ms

DAT custom code

1 0 0 0 1 (5 bit)



head pulse
8T
8T
data 1
6T
2T
data 0
2T
2T

Key No.	Function	Data code	Key No.	Function	Data code	Key No.	Function	Data code
0	stop ■	0 0 0 0 0 0	18	program 3	0 1 0 0 1 0	31	repeat ↻	0 1 1 1 1 1
1	open/close ⏏	0 0 0 0 0 1	19	program 4	0 1 0 0 1 1	42	memory	1 0 1 0 1 0
2	rew/rev ◀◀	0 0 0 0 1 0	20	program 5	0 1 0 1 0 0	43	counter mode	1 0 1 0 1 1
3	ff/cue ▶▶	0 0 0 0 1 1	21	program 6	0 1 0 1 0 1	44	reset	1 0 1 1 0 0
6	pause ❚❚	0 0 0 1 1 0	22	program 7	0 1 0 1 1 0	46	skip rev |◀◀	1 0 1 1 1 0
7	auto rec mute ○	0 0 0 1 1 1	23	program 8	0 1 0 1 1 1	47	skip fwd ▶▶|	1 0 1 1 1 1
8	rec ●	0 0 1 0 0 0	24	program 9	0 1 1 0 0 0	48	index	1 1 0 0 0 0
9	recall	0 0 1 0 0 1	25	program 0	0 1 1 0 0 1	49	start ID write	1 1 0 0 0 1
10	play	0 0 1 0 1 0	27	continuous memory (~)	0 1 1 0 1 1	50	skip ID write	1 1 0 0 1 0
15	music scan	0 0 1 1 1 1	28	auto	0 1 1 1 0 0	51	start ID erase	1 1 0 0 1 1
16	program 1	0 1 0 0 0 0	29	end search	0 1 1 1 0 1	52	skip ID erase	1 1 0 1 0 0
17	program 2	0 1 0 0 0 1	30	repeat A↔B	0 1 1 1 1 0	53	renumber	1 1 0 1 0 1

Input signal level .....5 V ±0.5 V
Load impedance 200Ω

■ SV-360 DAT MAINTENANCE CHART

• REGULAR MAINTENANCE

The purpose of periodic maintenance as recommended is to keep the equipment in the best possible operating condition throughout its useful life. Observance of this maintenance schedule ensures that maximum performance and reliability is obtained from the machine.

Regular maintenance is necessary because the DAT Recorder is a high-technology piece of equipment, containing DC motors, head cylinder assemblies, and a complex mechanism. These components deteriorate over time. Dust and dirt can clog the head gap, which affects the sound. In light of this, it is very important that overall maintenance be performed according to the maintenance chart to avoid problems resulting from heavy image. Maintenance should also be performed after any repairs on the equipment.

Maintenance is particularly recommended for DAT Recorders used in commercial and broadcast applications for serveral reasons. Installation and application are frequently under less than ideal conditions, such as long usage times and poor environmental conditions. All of this adversely affects the life span and performance of the machine. Regular maintenance assures that the purchaser obtains maximum value for this expenditure.

Part Name	Part Number	500	1000	1500	2000	2500	3000	3500	4000	4500	5000
Upper Cylinder	VEH0389–SER	○	●	○	●	○	●	○	●	○	●
Cylinder Ass'y	VEG0605	○	○	○	○	○	○	○	○	○	●
Gear Lever (R)	1NL0031ZA										●
Gear Lever (L)	1NL0030ZA										●
Roller Post	1DR0051ZA	○	○	○	○	○	○	○	●	○	○
DD Motor	DVX32D2LA	○	○	○	○	○	○	○	○	○	●
Guide Roller	1DR0005ZA	○	○	○	○	○	○	○	●	○	○
Brake Arm (R)	RNL63ZA										●
Brake Arm (L)	RNL64ZA										●
Driving Pulley	RDR9013ZA										●
Mode Belt	RDV59ZA										●
Intermediate Pulley	RDR9012ZA										●
FF Idler	RNG53ZA										●
Mode Motor	1JQ0012ZA								●		
Pinch Roller	1NB0001ZA	○	○	○	○	○	●	○	○	○	○
Belt	RDV60ZB										●
Plate Spring (GND)	RUS761ZA										●
Cam Gear	RDG5936ZA										●
Pinch Roller Arm	RDR95ZA								●		
Play Idler	RDI9002ZA		○		○		●		○		○
Soft Brake	1NL0016ZA								●		
Driving Gear (A)	1NG0007ZA										●
Gear	1NG0008ZA										●
Trigger (B)	RUB463ZA										●
Reel Table (R)	1DM0015ZA										●
Reel Table (L)	1DM0014ZA										●
Sector Gear (R)	1NG0005ZA										●
Sector Gear (L)	1NG0006ZA										●
Int. Pulley Bearing	1NM0005ZA										●
Cass. Detection SW	EVQWR2001										●
Cass. Detection SW	EVQWR2002										●

● Replacement
○ Cleaning

• DAT Head and Tape Transport Cleaning

Through normal usage of any tape machine, dirt and debris from the tape accumlates on the heads, which eventually causes performance problems. By using a cleaning cassette regularly, dirt buildup can be minimized, prolonging the life of the tape heads, and also keeping tape posts, tape guides, and the pinch roller clean.

• DAILY CLEANING

1. Play the cleaning cassette (Panasonic Part No. RT-RCLP) for 15-20 seconds once a day.
2. Do not use the same part of the cleaning tape more than once.

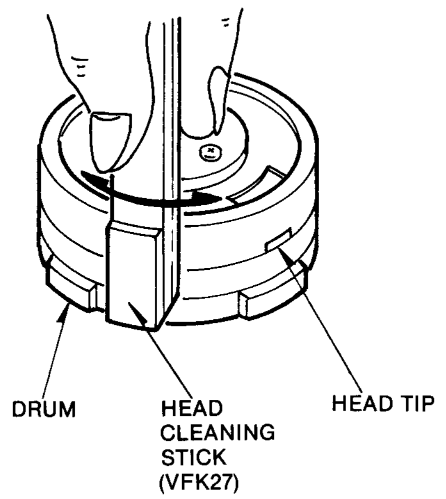
• WEEKLY CLEANING

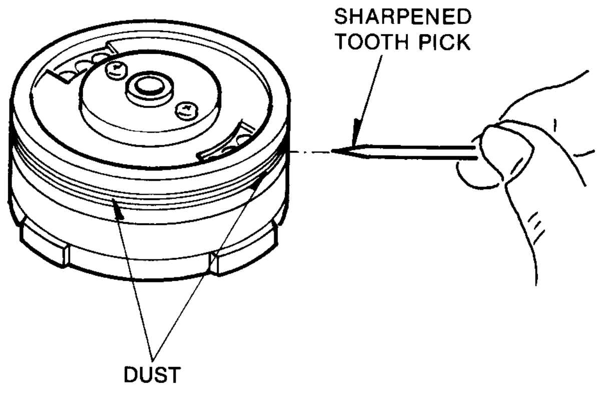
Once per week the following cleaning regimen should be performed:

(1) Perform the 15-second daily cleaning using a standard DAT cleaning cassette.
(2) Clean all tape contact surface, including A/C head upper and lower drum, thoroughly with a soft cloth soaked in Freon TF.
(3) Clean both heads by gently rubbing in a horizontal direction, as depicted, using a head cleaning stick (VFK27) or a lint free cloth moistened with Freon TF.
(4) Wipe all tape contact surfaces, including upper and lower drum, with a dry soft cloth to ensure that all residual moisture is removed from the tape contact surfaces.

Note:

(1) When cleaning the upper drum, hold it secure with your finger tips.
(2) Occasionally, dirt or debris may become lodged in the air bearing channels that are cut in the upper drum's surface. This can be removed by gently dislodging it with a sharpened toothpick.
(3) Denatured alcohol may be used in place of Freon TF if modest amounts of solvent are used Excess alcohol will dilute and remove the bearing lubricant in the capstan motor and rotary guides.

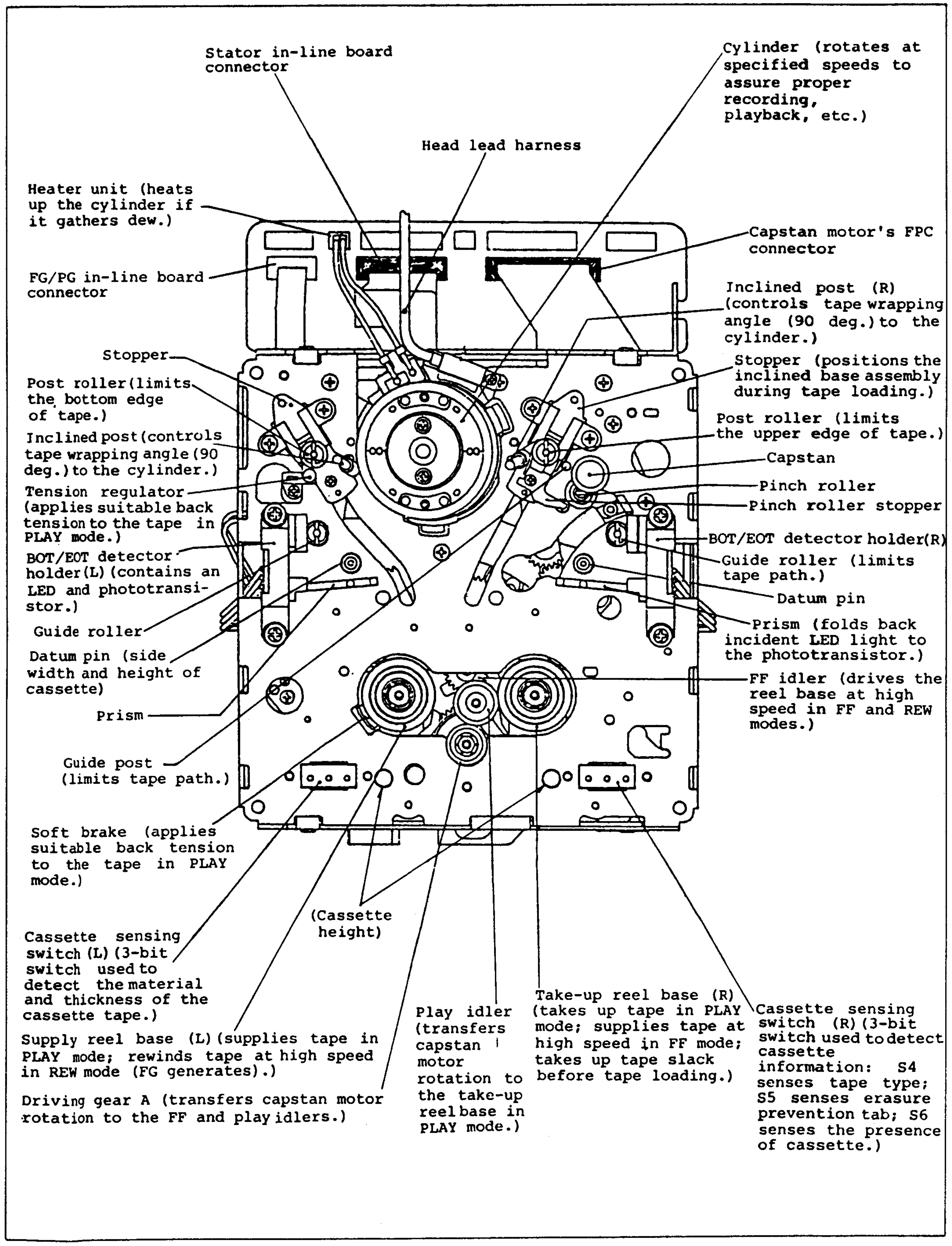




*Freon TF is registered trademark of E.I. dupont de Nemours & Co, Inc.

• MECHANISM COMPONENT LAYOUT

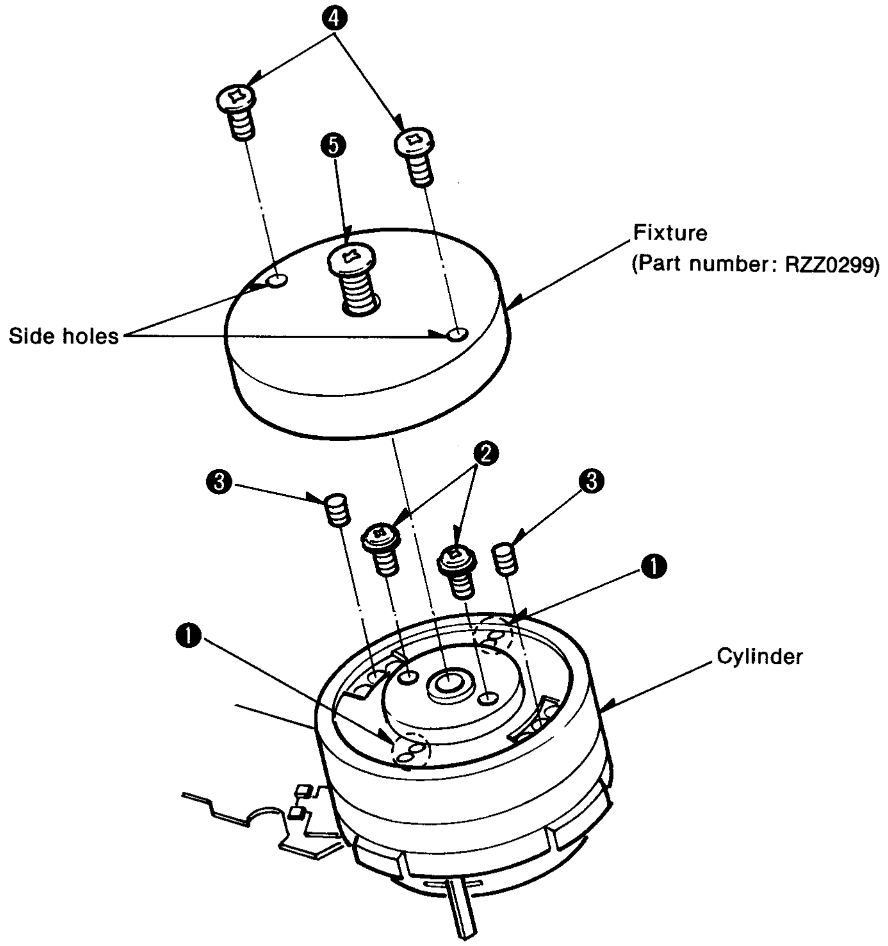
Top Side


Stator in-line board connector
Head lead harness
Cylinder (rotates at specified speeds to assure proper recording, playback, etc.)
Heater unit (heats up the cylinder if it gathers dew.)
Capstan motor's FPC connector
FG/PG in-line board connector
Inclined post (R) (controls tape wrapping angle (90 deg.) to the cylinder.)
Stopper
Stopper (positions the inclined base assembly during tape loading.)
Post roller (limits the bottom edge of tape.)
Post roller (limits the upper edge of tape.)
Inclined post (controls tape wrapping angle (90 deg.) to the cylinder.)
Capstan
Pinch roller
Tension regulator (applies suitable back tension to the tape in PLAY mode.)
Pinch roller stopper
BOT/EOT detector holder(R)
BOT/EOT detector holder (L) (contains an LED and phototransistor.)
Guide roller (limits tape path.)
Datum pin
Guide roller
Prism (folds back incident LED light to the phototransistor.)
Datum pin (side width and height of cassette)
FF idler (drives the reel base at high speed in FF and REW modes.)
Prism
Guide post (limits tape path.)
Soft brake (applies suitable back tension to the tape in PLAY mode.)
(Cassette height)
Cassette sensing switch (L) (3-bit switch used to detect the material and thickness of the cassette tape.)
Supply reel base (L) (supplies tape in PLAY mode; rewinds tape at high speed in REW mode (FG generates).)
Driving gear A (transfers capstan motor rotation to the FF and play idlers.)
Play idler (transfers capstan motor rotation to the take-up reel base in PLAY mode.)
Take-up reel base (R) (takes up tape in PLAY mode; supplies tape at high speed in FF mode; takes up tape slack before tape loading.)
Cassette sensing switch (R) (3-bit switch used to detect cassette information: S4 senses tape type; S5 senses erasure prevention tab; S6 senses the presence of cassette.)

• REMOVING THE UPPER CYLINDER

(1) Desolder the head terminals and disconnect the leads (❶).
(2) Remove the two screws (❷) retaining the upper cylinder.
(3) Remove the two hexagon socket head screws.(❸)
(4) Install the 2 fixture screws (XSN2+8) (❹) in the side holes in the fixture (the hexagonal-head screws were removed from these holes).

Secure the center screw (XSN3+8) (❺) and then remove the fixture from the cylinder.

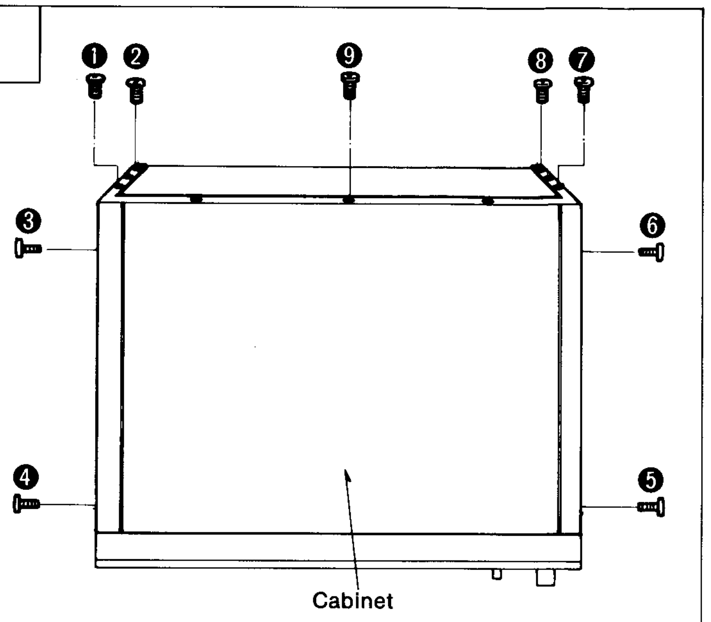

❹
❺
Fixture
(Part number: RZZ0299)
Side holes
❸
❷
❸
❶
❶
Cylinder

■ DISASSEMBLY INSTRUCTIONS

Ref. No. 1 — **How to remove the cabinet**

Procedure 1

- Remove the 9 screws (❶~❾).


❶ ❷
❾
❽ ❼
❸
❻
❹
❺
Cabinet

Ref. No. 2 — **How to remove the audio and input/output P.C.B.**

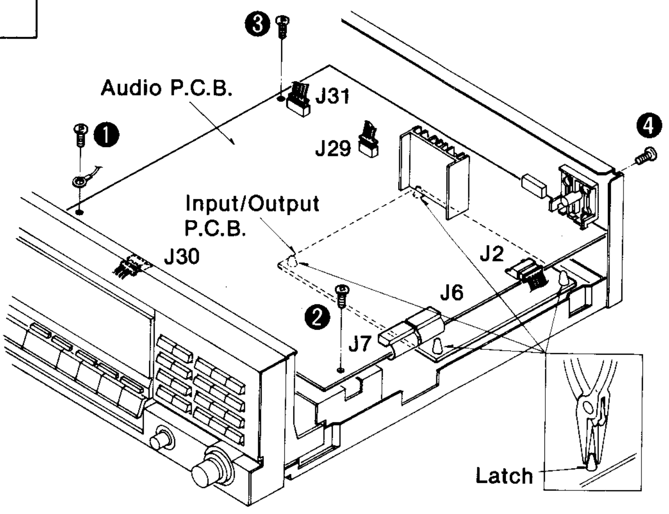
Procedure 1→2

(A) Audio P.C.B.

- Remove the 4 screws (❶~❹).
- Remove the 6 connectors (J2, 6, 7, 29, 30 and 31).

(B) Input/output P.C.B.

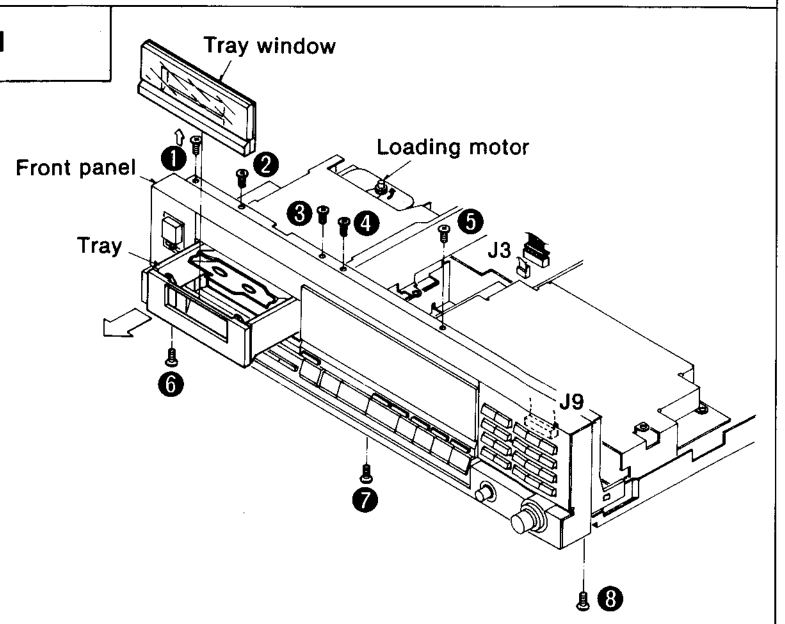
- Press the 4 latches with a pair of pliers as shown to remove the P.C.B.


❸
Audio P.C.B.
J31
❶
J29
❹
Input/Output P.C.B.
J30
J2
J6
❷
J7
Latch

Ref. No. 3 — **How to remove the front panel**

Procedure 1→2→3

- Take out the tray by turning the loading motor counterclockwise.
- Pull the tray window upwards.
- Remove the 2 connectors (J3, 9).
- Remove the 8 screws (❶~❽).


Tray window
Front panel
❶
❷
Loading motor
Tray
❸
❹
❺
J3
❻
J9
❼
❽

Ref. No. 4 — **How to remove the front panel parts**

Procedure 1→2→3→4

(A) Panel control P.C.B.

- Remove the 8 screws (❶~❽).

(B) REC level & balance control P.C.B.

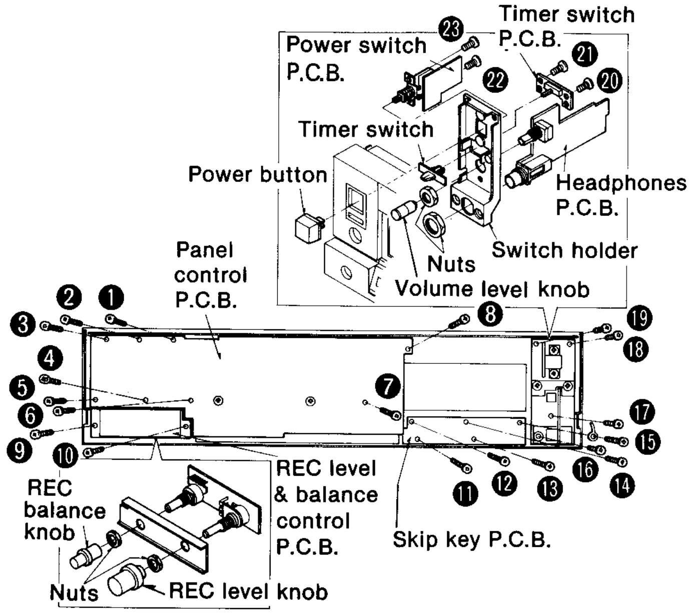
- Remove the 2 screws (❾, ❿).

(C) Skip key P.C.B.

- Remove the 5 screws (⓫~⓯).

(D) Timer switch, headphones and power switch P.C.B.

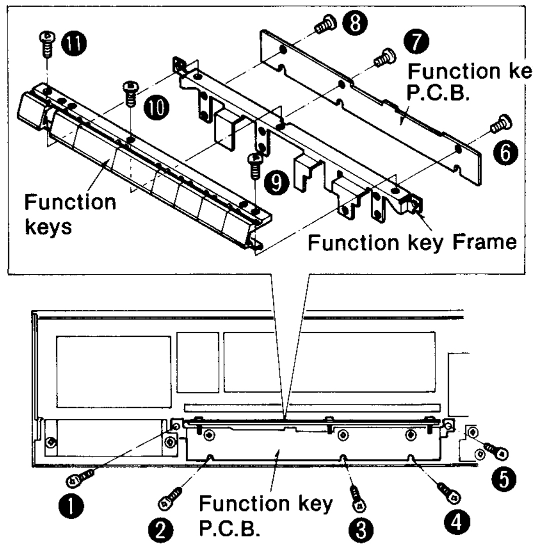
- Remove the switch holder by unscrewing the 4 screws (⓰~⓳).
- Remove the timer switch P.C.B. by removing the 2 screws (⓴, ㉑), and the switch.
- Remove the headphones P.C.B. by removing the volume level knob and their nuts.
- Remove the power switch P.C.B. by removing the 2 screws (㉒, ㉓).


Power switch P.C.B.
㉓
Timer switch P.C.B.
㉑
㉒
⓴
Timer switch
Power button
Headphones P.C.B.
Panel control P.C.B.
Nuts
Switch holder
Volume level knob
❷ ❶
❸
❽
⓳
⓲
❹
❺
❻
❼
⓱
⓯
❾
❿
REC level & balance control P.C.B.
⓰
⓫ ⓬ ⓭
⓮
REC balance knob
Skip key P.C.B.
Nuts
REC level knob

Ref. No. 5 — **How to remove the function key P.C.B.**

Procedure 1→2→3→4→5

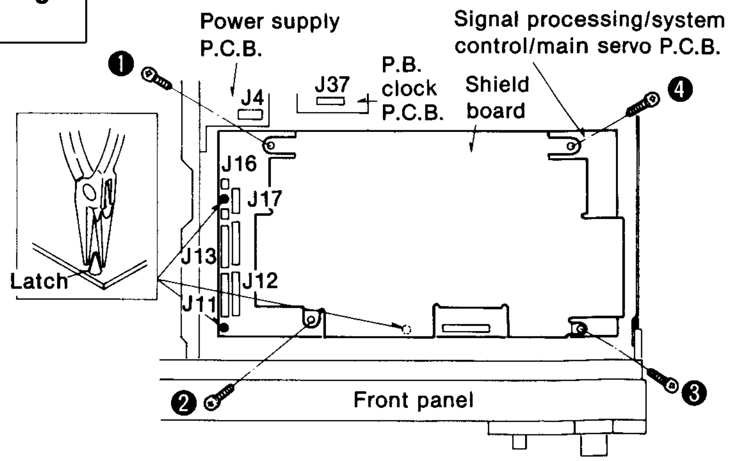
- Remove the 11 screws (❶~⓫).


⓫
❽
❼
Function key P.C.B.
❿
❻
❾
Function keys
Function key Frame
❺
❶
❷
Function key P.C.B.
❸
❹

Ref. No. 6 — **How to remove the signal processing/system control/main servo P.C.B.**

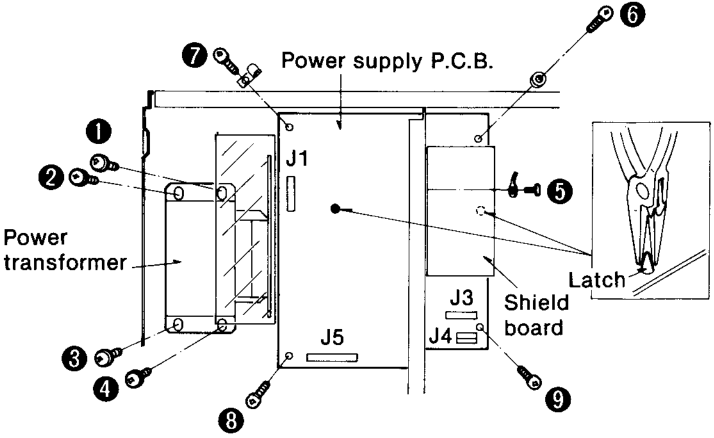
Procedure 1→2→6

- Remove the 4 screws (❶~❹) and remove the shield board.
- Remove the 7 connectors (J4, 9, 11, 14, 16, 17 and 37).
- Press the 3 latches with a pair of pliers as shown to remove the P.C.B.


Power supply P.C.B.
Signal processing/system control/main servo P.C.B.
❶
J4
J37
P.B. clock P.C.B.
Shield board
❹
J16
J17
J13
J12
J11
Latch
Front panel
❷
❸

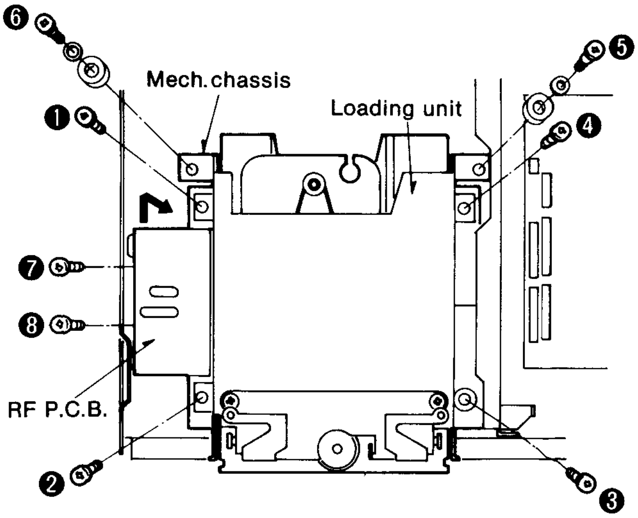
Ref. No. 7	How to remove the power supply P.C.B.
Procedure 1→2→7	

- Unscrew the 4 screws (❶~❹) and remove the power transformer.
- Unscrew the 1 screw (❺) to remove the shield board.
- Remove the 4 connectors (J1, 3~5).
- Remove the 4 screws (❻~❾).
- Press the 2 latches with a pair of pliers as shown to remove the P.C.B.


❼
Power supply P.C.B.
❻
❶
❷
J1
❺
Power transformer
Latch
J3
Shield board
J5
J4
❸
❹
❽
❾

Ref. No. 8	How to remove the loading unit, mech. chassis and RF P.C.B.
Procedure 1→2→8	

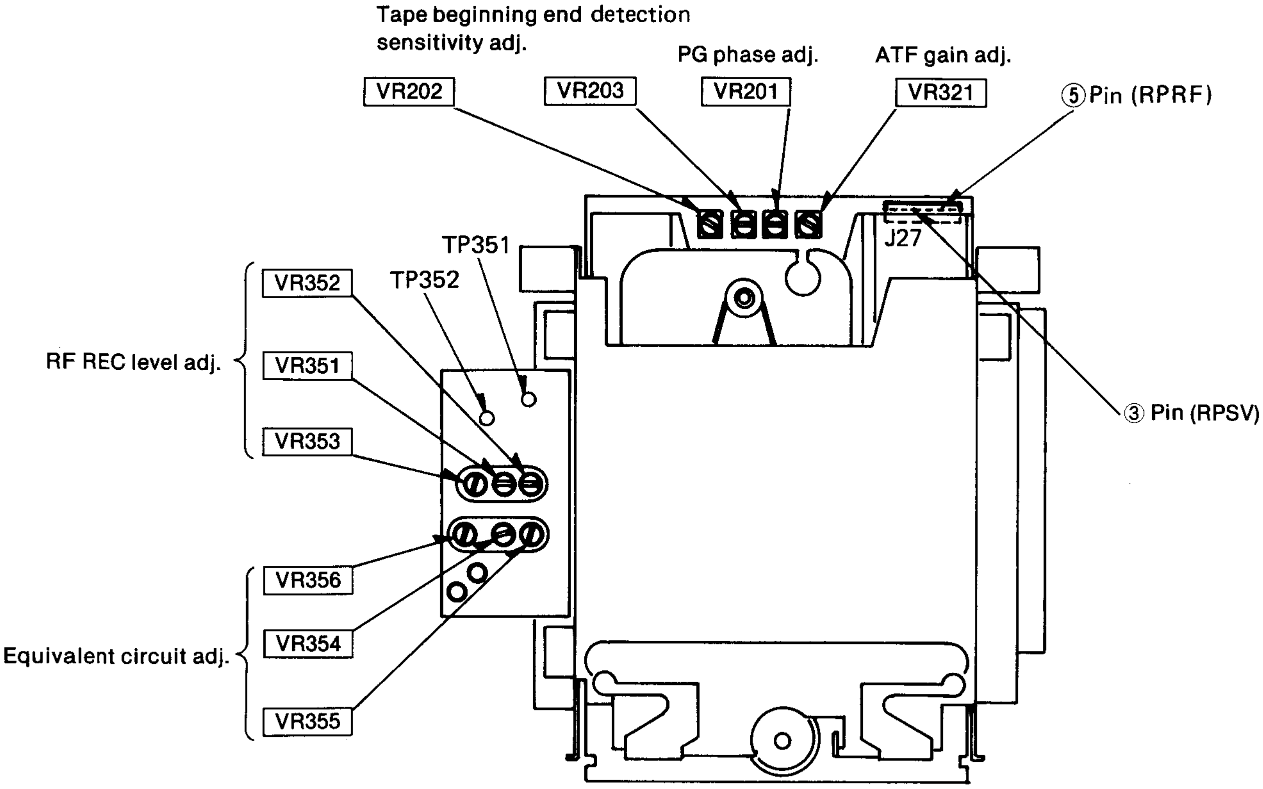
- Unscrew the 4 screws (❶~❹) and remove the loading unit.
- Unscrew the 2 screws (❺, ❻), and remove the mecha. chassis.
- Unscrew the 2 screws (❼, ❽), and remove the RF P.C.B.


❻
Mech. chassis
❺
Loading unit
❶
❹
❼
❽
RF P.C.B.
❷
❸

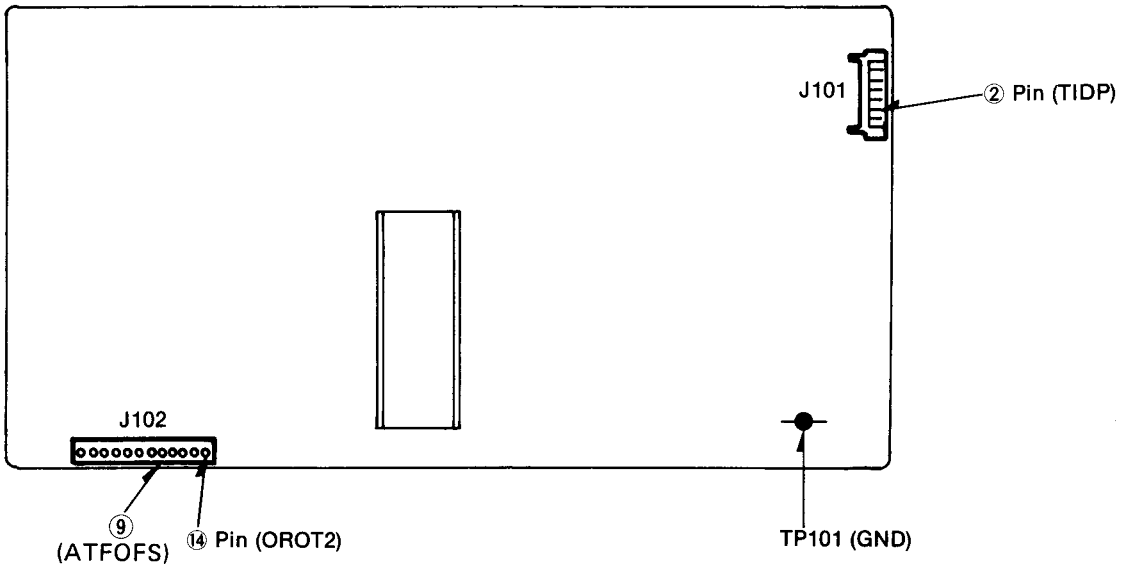
MEASUREMENTS AND ADJUSTMENTS

• Adjustment Points

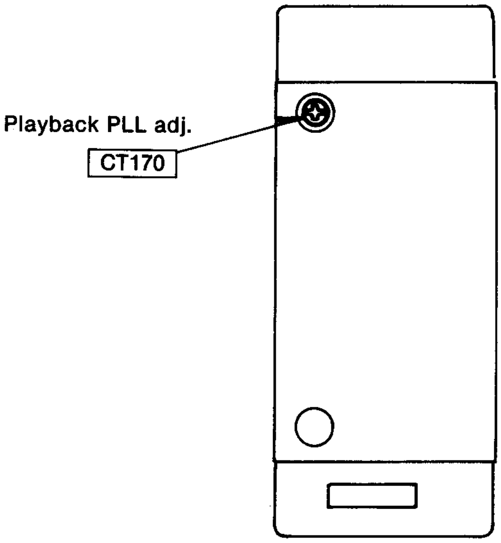
• SUB SERVO/RF P.C.B.


Tape beginning end detection sensitivity adj.
PG phase adj.
ATF gain adj.
VR202
VR203
VR201
VR321
⑤Pin (RPRF)
J27
③ Pin (RPSV)
TP351
TP352
RF REC level adj.
VR352
VR351
VR353
Equivalent circuit adj.
VR356
VR354
VR355

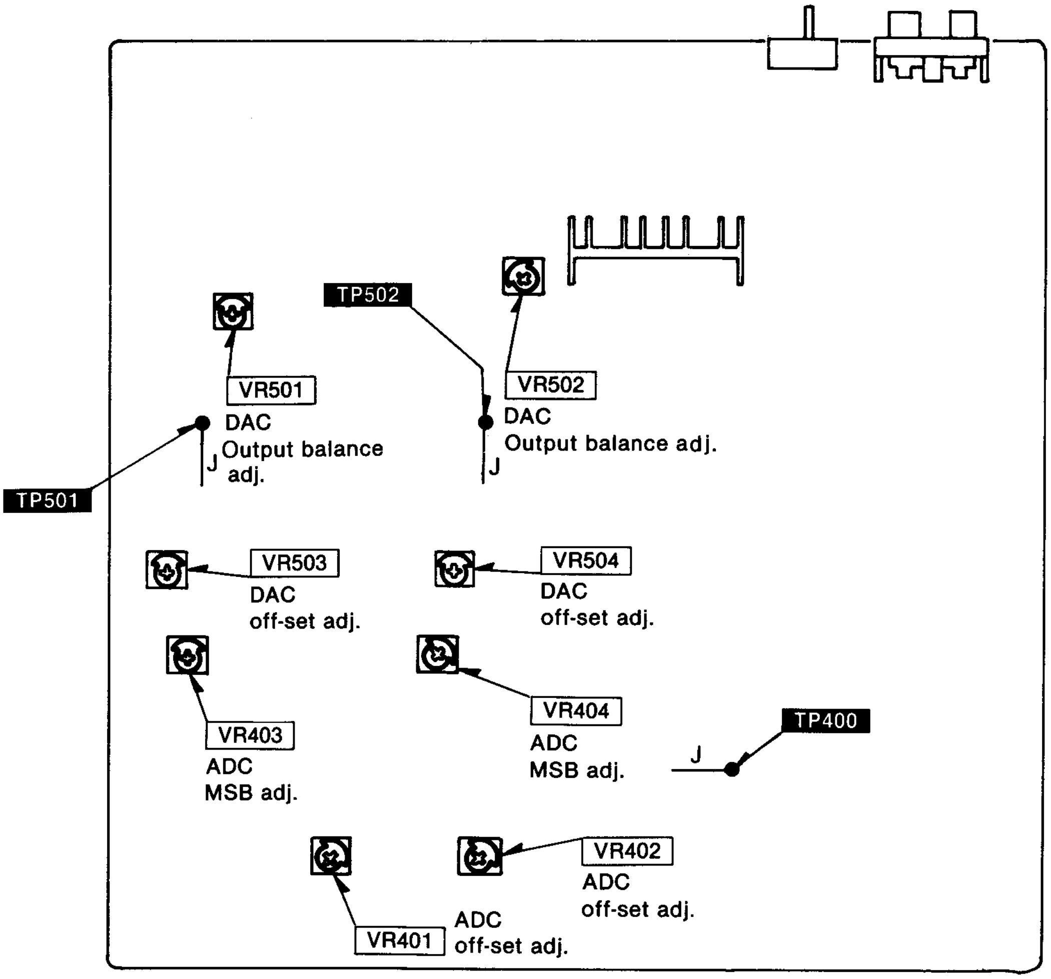
• SIGNAL PROCESSING•SYSTEM CONTROL•MAIN SERVO P.C.B.


J101
② Pin (TIDP)
J102
⑨ (ATFOFS)
⑭ Pin (OROT2)
TP101 (GND)

• P.B. CLOCK P.C.B.


Playback PLL adj.
CT170

• AUDIO P.C.B.


TP502
VR501
DAC
Output balance
adj.
J
TP501
VR502
DAC
Output balance adj.
J
VR503
DAC
off-set adj.
VR504
DAC
off-set adj.
VR403
ADC
MSB adj.
VR404
ADC
MSB adj.
J
TP400
VR402
ADC
off-set adj.
VR401
ADC
off-set adj.

Electrical Adjustment

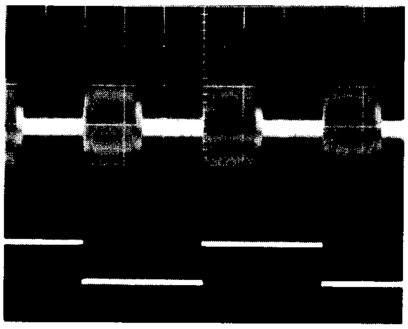
Equipment and Tools

- 2-channel 30MHz oscilloscope (with external trigger and delay sweep) (with a 10:1 probe)
- Standard electrical tools and equipment
- Electrical adjustment screwdriver—SZZP1043C
- Standard test tapes — RD-PG01 (PG reference), RD-ER01 (errer rate)
- Blank tape for recording and playback (commercially available blank tape)

1. PG Phase Adjustment

1. Play the PG reference portion of the standard test tape (RD-PG01).
2. Set up the oscilloscope and connect as shown below.

	CH-1	CH-2
Test Point	**J27 ③ (RPSV)**	**J102 ⑭ (OROT2)**
Volts/Div.	20mV	0.5V
Time/Div.	5msec.	
Delay	50μsec.	
Trig	CH-2	
AC.GND.DC	AC	DC
Adjustment Point	**VR201**	

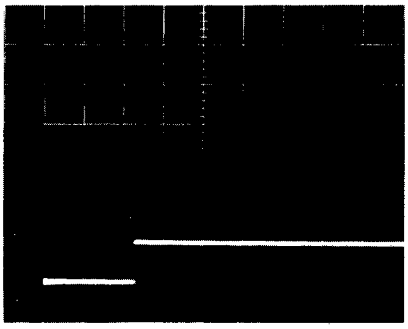


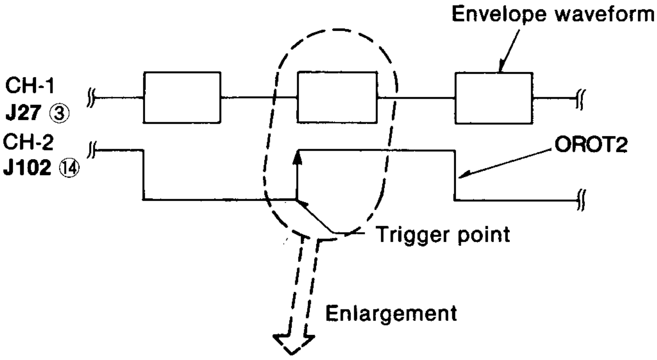
Note: TP101 is ground.

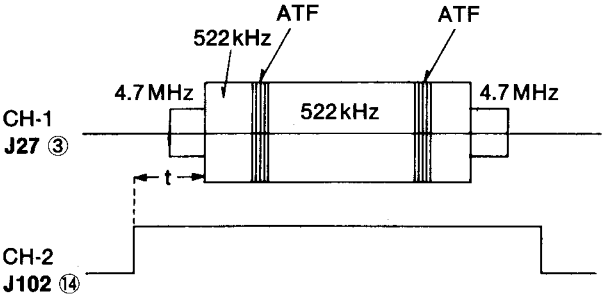
3. After set up, the waveform shown on the right appears.
4. The waveform in the figure on the right is enlarged using the delayed sweep. The point where the delayed sweep is used to enlarge the waveform is the leading edge of the CH-2 (OROT2) waveform.

   Delayed sweep—50μsec.

5. Rotate **VR201** (located on the mechanism board) and adjust the time ("t" in the figure below) from the leading edge of the waveform of CH-2 to the leading edge of the 522kHz waveform of CH-1 so that it is within ±**0.04msec** of the time indicated on the label on the standard tape (**e.g. 0.183msec**).




Envelope waveform
CH-1
J27 ③
CH-2
J102 ⑭
OROT2
Trigger point
Enlargement


ATF
ATF
522kHz
4.7MHz
522kHz
4.7MHz
CH-1
J27 ③
t
CH-2
J102 ⑭

t: Value (msec) indicated on the standard tape ±0.04msec.

2. Equivalent Circuit Adjustment

1. Play the **error rate measurement** standard test tape (RD-ER01).
2. Set the timer switch to the play position. Then, while holding down the "recall" button, turn on the power switch. (Plays the error measurement tape using timer playback.) In this mode, the error rate is displayed on the tape counter whenever the "recall" button is pressed.
   The adjustment is correct if the error rate value is **100** or lower. If this value continues to be above **100**, proceed to step 3. (Display range is from **0000** to **9999.**)
3. While viewing the error rate, adjust **VR356, VR355** and **VR354** a little at a time to reduce the error rate. (Target value: **50 or lower**)

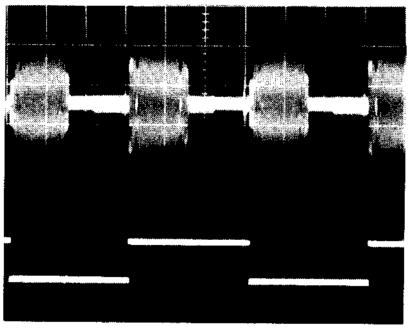
   Notes:

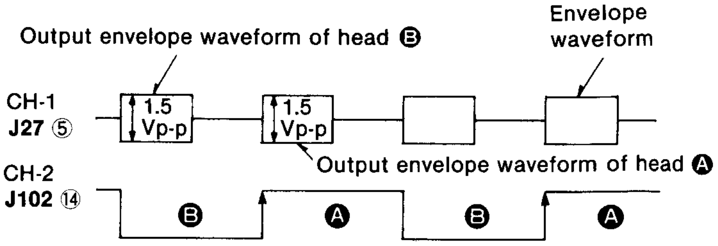
   (1) It takes about 2 seconds for the result of the adjustment of **VR354~VR356** to be displayed.
   (2) If the error rate cannot be lowered below **100**, check the points below.
      ① Dirty head, clogged head, disconnected head, etc.
      ② Defective tape transport (dirty tape, uneven winding, etc.)
      ③ Other electrical adjustment defects (PG adjustment).
      ④ Routing of the head leads (check if they are picking up induced noise).

If the error rate cannot be reduced to the target value after the adjustments above have been performed, perform the adjustments of step 4. After completing this, repeat steps 1~3.

4. Set up the oscilloscope and connect as shown below.

	CH-1	CH-2
Test Point	**J27 ⑤ (RPRF)**	**J102 ⑭ (OROT2)**
Volts/Div.	50mV	0.5V
Time/Div.	5msec.	
Delay	——	
Trig	CH-2	
AC.GND.DC	AC	DC
Adjustment Point	**VR356, VR355**	




Output envelope waveform of head Ⓑ
Envelope waveform
CH-1
J27 ⑤
1.5 Vp-p
1.5 Vp-p
Output envelope waveform of head Ⓐ
CH-2
J102 ⑭
Ⓑ
Ⓐ
Ⓑ
Ⓐ

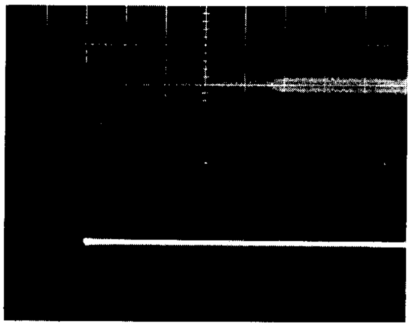
As shown above, when the waveform of CH-2 (OROT2) is low, an envelope waveform is output from head Ⓑ. On the other hand, the envelope waveform from head Ⓐ is output when CH-2 is high.

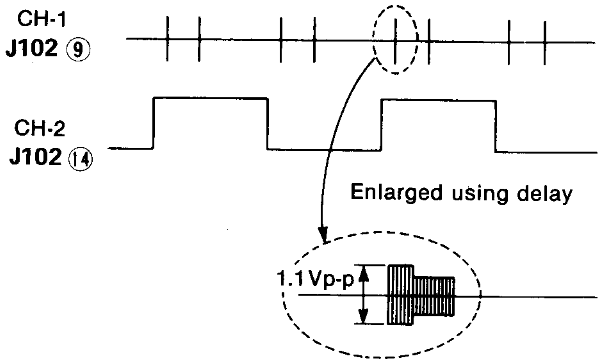
5. After set up, the waveform shown on the right appears.
6. Adjust **VR356** so that the amplitude of the output envelope waveform of head Ⓐ is **1.5Vp-p**.
7. Adjust **VR355** so that the amplitude of the output envelope waveform of head Ⓑ is **1.5Vp-p**.

3. ATF Gain Adjustment

1. Play the **error rate measurement** standard test tape (RD-ER01).
2. Set up the oscilloscope and connect as shown below.

	CH-1	CH-2
Test Point	**J102 ⑨ (ATFOFS)**	**J102 ⑭ (OROT2)**
Volts/Div.	50mV	0.5V
Time/Div.	5msec.	
Delay	50μsec.	
Trig	CH-1	
AC.GND.DC	AC	DC
Adjustment Point	**VR321**	





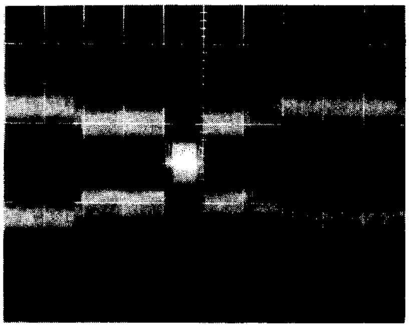
3. Monitor about 8 lines of the ATF waveform. Select the line with the largest amplitude and enlarge it using the 50μsec. delayed sweep.
4. Adjust **VR321** so that the amplitude of the waveform is **1.0Vp-p**. Check that the other smaller amplitudes are **0.8Vp-p** or higher.

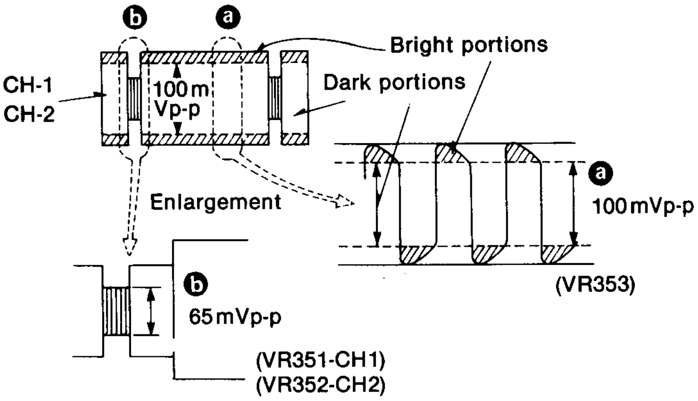
4. RF Recording Level Adjustment

Note: Steps 1~4 are temporary adjustments. If the adjustments are off after performing 5~7, repeat steps 1~7.

1. Load a blank tape for recording and set the recorder for **"REC-PLAY"** .
2. Set up the oscilloscope and connect as shown below.

	CH-1	CH-2
Test Point	**TP351** **J28 (2)**	**TP352** **J28 (4)**
Volts/Div.	5mV	5V
Time/Div.	2msec.	
Delay	0.1msec.	
Trig	——	
AC.GND.DC	AC	DC
Adjustment Point	**VR351,** **VR353**	**VR352,** **VR353**



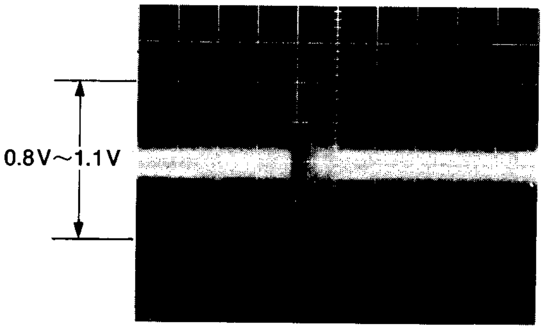

ⓑ
ⓐ
Bright portions
Dark portions
CH-1
CH-2
100m Vp-p
Enlargement
ⓐ
100mVp-p
(VR353)
ⓑ
65mVp-p
(VR351-CH1)
(VR352-CH2)

3. Set the delay time of the oscilloscope to 0.1msec to enlarge the waveform. Ajust **VR351** (CH-1) and **VR352** (CH-2) so that ⓑ in the figure is **65mVp-p**.
4. Next, adjust **VR353** so that ⓐ in the figure is **100mVp-p**.
5. Set up the oscilloscope and connect as shown below.

	CH-1	CH-2
Test Point	**J102 ⑩** **(ATFOFS)**	**J102 ⑭** **(OROT2)**
Volts/Div.	20mV	0.5V
Time/Div.	2msec.	
Delay	0.2msec.	
Trig	CH-2	
AC.GND.DC	AC	DC
Adjustment Point	**VR351** – Head A **VR352** – Head B	

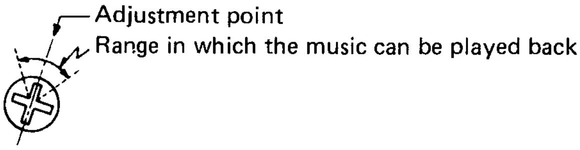
6. Record a **zero signal (erase)** on the blank tape and play back the same portion.

7. The adjustment is correct if the amplitude of the waveform at J12 ⑩ is within **0.8V** to **1.1V**. If not, adjust **VR351** for head A (or **VR352** for head B). **VR351~353** adjust the recording current. After adjustment, record and check by play back the same portion.



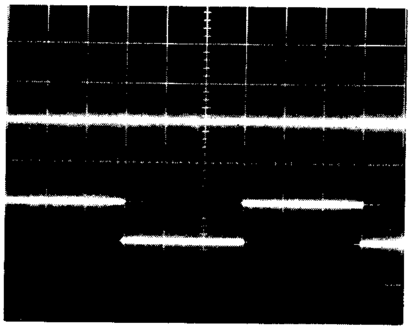
5. Playback PLL Adjustment

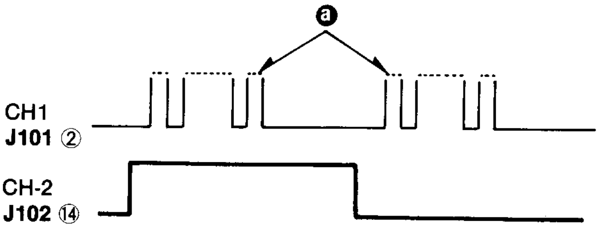
1. Load a music tape and set the recorder for **"Play"**.
2. Adjust **CT170** on the P.B. clock P.C.B. to the point where the music can be played back.



3. After determining the range in which the music can be played back by turning **CT170** in the clockwise and counterclockwise directions, set **CT170** to the center of the range.
4. Play the **error rate measurement** standard test tape (RD-ER01). (Or, stop a tape already recorded with music and check the waveform at **J101** ② **(TIDP)** in the **FF** or **REW** mode.)

	CH-1	CH-2
Test Point	**J101** ② **(TIDP)**	**J102** ⑭ **(OROT2)**
Volts/Div.	0.5V	0.5V
Time/Div.	5msec.	
Delay	——	
Trig	CH-2	
AC.GND.DC	DC	DC
Adjustment Point	**CT170**	



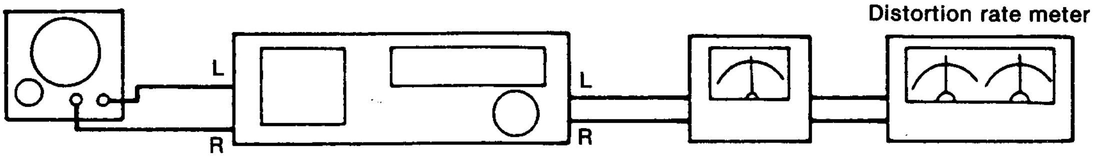


Note: Fine adjust **CT170** for the maximum number of pulses (appear as dots in "a" in the figure above) during **FF** or **REW** at 200 times normal speed (when the speed is the fastest).

6. Playback Adjustment

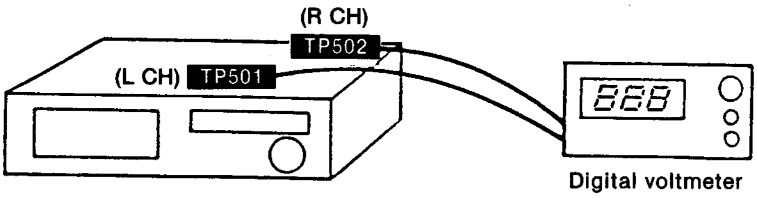
1) DAC Output Balance

1. Load a blank tape for recording.
2. Use a signal generator to feed a 1kHz signal to ANALOG IN.
3. Set the recorder to the record mode and adjust **INPUT VR** so that the level meter moves to **−20dB**.
4. Record the **−20dB** signal.
5. Rewind the recorded portion and play it back.
6. Adjust **VR501** (left channel) and **VR502** (right channel) to minimize the distortion rate. (Reference distortion rate of about 0.05%)
7. After adjustment, check that the playback output is **−20dB±0.2dB** with respect to 0dB at 1kHz.



2) DAC Offset Adjustment

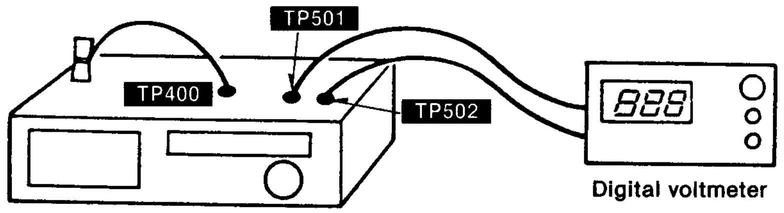
1. Set the recorder to DIGITAL IN in the stop mode. (no digital signal input)
2. Connect a digital voltmeter to TP501 for the left channel (TP502 for the right channel).
3. Adjust **VR503** for the left channel (**VR504** for the right channel) so that the voltage at the test point above is **0±0.1mV**.



7. Recording Ajustment

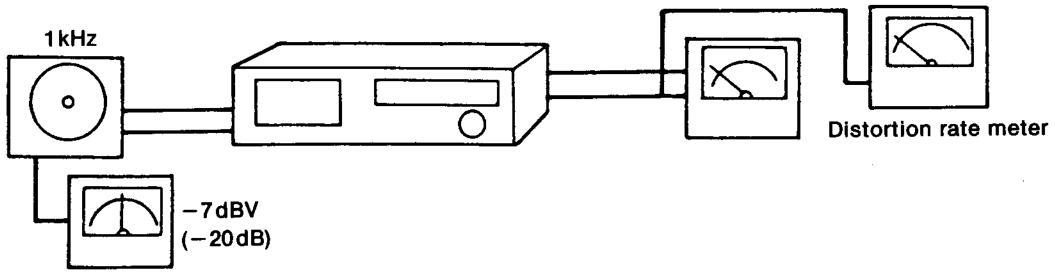
1) ADC Offset Adjustment

1. Set the recorder to ANALOG IN in the stop mode. (no analog signal input)
2. Connect TP400 to ground.
3. Connect the digital voltmeter to TP501 for the left channel (TP502 for the right channel).
4. Adjust **VR401** for the left channel (**VR402** for the right channel) so that the voltage at the test point above is **0±0.5mV**.
5. Disconnect TP400 from ground, leave it floating.
6. Check that the voltage at TP501 and TP502 is **0±4mV**.



2) ADC MSB Adjustment

1. Use a signal generator to feed a 1kHz, −7dBV (0.45V) signal to ANALOG IN.
2. Adjust **VR403** (left channel) and **VR404** (right channel) for a minimum distortion rate at the monitor outputs of ANALOG OUT. (Reference distortion rate of about 0.01% or lower)
3. Lower the input level by **20dB** and check that the output level drops to **−20dB±0.3dB** from **−7dBV (0.45V)**.



8. Tape Begin/End Detection Sensitivity Adjustment

1. Load a 5% transparency tape into the mechanism.
2. Connect **BOT** (pin ⑥ of J13) to the oscilloscope and adjust **VR203** so that the output is **3.5V**.
3. Connect **EOT** (pin ⑥ of J14) to the oscilloscope and adjust **VR202** so that the output is **3.5V**.

■ TERMINAL FUNCTION OF IC

- **IC102 (SAQ0002-1): DEM**

Pin No.	Mark	I/O	Function
1	DIG-I	I	This terminal inputs the digital signal.
2	SIDSH	I	This terminal inputs the shift clock signal for the sub-code ID.
3	SIDDA	I/O	This terminal inputs and outputs the serial data for the sub-code ID.
4	MID-S	I	This terminal inputs the shift clock signal for the main ID.
5	MID-D	I/O	This terminal inputs and outputs the serial data for the main ID data.
6	MICONW	I	This terminal inputs the writing request signal for the PACK data from the microcomputer.
7	MICONR	I	This terminal inputs the reading request signal for the PACK data from the microcomputer.
8 ~ 11	PD0 ~ PD3	I/O	These are buses of the PACK data for the microcomputer (LSB~).
12	GND	I	For ground connection
13 ~ 16	PD4 ~ PD7	I/O	These are buses of the PACK data for the microcomputer (~MSB).
17 ~ 26	ADR0 ~ ADR9	O	These are addresses of the sub-code RAM.
27	R-WE	O	This terminal outputs the enable signal to write the sub-code RAM.
28	R-OE	O	This terminal outputs the enable signal to output the sub-code RAM.
29	NC	—	No connection
30 ~ 37	MD7 ~ MD0	I/O	These are buses of the sub-code RAM (LSB~MSB).
38	GND	I	For ground connection
39	C1FLAG	I	This terminal inputs the C1 flag for calculating error rate.
40 ~ 47	IDB7 ~ IDB0	I	These are internal buses of ECC (LSB~MSB).
48	ORB	I	This terminal inputs the latch pulse of output port B.
49	ORA	I	This terminal inputs the latch pulse of output port A.
50	NEXTP	I	Inputs the next page increment signal for calculating the syndrome of the sub-code.
51	SND-S	I	Inputs a signal for starting the syndrome calculating for the sub-code.

Pin No.	Mark	I/O	Function
52	DIRQT	O	Outputs the data of the main ID during recording. Outputs the writing request signal of the demodulated data during playback.
53	DEMDAT	O	Outputs a signal to latch calculated syndrome results for the sub-code during recording. Outputs the demodulated data of pin. 8-10 during playback.
54	DREST	O	Outputs a signal to clear the register for the syndrome calculation of the sub-code during recording. Outputs a signal to clear the data symbol counter in the block during playback.
55	ADLOAD	O	Outputs a signal to reset the ECC address counter of the sub-code during recording. Outputs a signal to load the block number of the playing data during playback.
56	MLACH	O	Outputs the clock signal for syndrome calculation of the sub-code during recording. Outputs the latch clock signal of 8 bits of playing data during playback.
57	DCP	O	Outputs the shift clock signal of the main ID during recording. Outputs the shift clock signal of the playing data during playback.
58	CDCP	O	Outputs the data of the digital IN during recording. Outputs the shift clock signal of ID code during playback.
59	V_{CC}	I	For connection to +5V.
60	GND	I	For ground connection.
61	TEST	I	Inputs the control signal of external access to the sub-code RAM.
62	PCMMAD	I	Inputs the window signal to calculate C1 of the sub-code.
63	SUBOE	I	Input the latch signals of sub-code datas SD7~SD0 during recording.
64 ≀ 71	SD7 ≀ SD0	O	These are data buses of the sub-code (LSB~MSB).
72	DEMCOD	I	Inputs the NPZI-demodulated playback signal by PLL.
73	PLLCP	I	Input the shift clock signal of the DEM code.
74	D-DATA	I	Inputs the data for D/A.
75	D-SIFT	O	Outputs the shift clock signals for D/A and A/D.
76	D-LOAD	O	Outputs the load clock signals for D/A and A/D.
77	LR2	O	Outputs the double-length clock signal of L/R channels (96kHz).
78	LSRR	O	Outputs the switching signal of L or R channel (48kHz). At "High" level...left channel At "Low" level...right channel
79	LR4	O	Outputs the quadruple-length signal of L/R channel (192kHz).
80	D-FLAG	I/O	This terminal is for output and input of the error flag of digital signal.
81	H-SW	I	Inputs the PG of the drum.
82	FS-SIF	I	Inputs the shift clock signal of the FS-DAT.

Pin No.	Mark	I/O	Function
83	FS-SYN	I	For identification of the FS-DAT. At "Low" level...Control data At "High" level...level meter data
84	FS-DAT	I/O	Inputs the control data (recording or playback and so on) and outputs the level meter data.
85	GND	I	For ground connection.
86	CXAI	I/O	Crystal terminal (12.288MHz)
87	CXAO		
88	CXBI	I/O	Crystal terminal (11.2896MHz)
89	CXBO		
90	VCOIN	I	Inputs the PLL clock signal for digital input.
91	VCOA	O	Outputs the PLL phase comparison signal for digital input. (A)
92	VCOB	O	Outputs the PLL phase comparison signal for digital input. (B)
93	DIG-O	O	Outputs the digital signal.
94	FRAME	O	Outputs the frame signal of the playback signal.
95	MSYNC	O	Outputs the synchronous detection signal of the playback signal.
96	IDP	O	Outputs a signal for the parity check of the ID code.

- **IC101 (SAQ0001-2): DSP**

Pin No.	Mark	I/O	Function
1 ≀ 8	SD0 ≀ SD7	I	Inputs the data of the sub-code (LSB~MSB).
9	SUBOE	O	Outputs the latch clock signal of the sub-code data.
10	SUBMAD	O	Outputs the window signal to calculate C1 of the sub-code.
11	FCH	O	Output a signal of 9.408MHz.
12	GND	I	For ground connection.
13	CDCP	I	Inputs the digital data during recording. Inputs the shift clock signal of the ID code during playback.
14	DCP	I	Inputs the shift clock signal of the main ID during recording. Inputs the shift clock signal of the playing data during playback.
15	ADRLOA	I	This is a block address and inputs the load signal of the ID code.
16	DEMDAT	I	Outputs the serial data of 8 bits of playing data.

Pin No.	Mark	I/O	Function
17	DIRQT	I	Inputs the serial data of the main ID during recording. Inputs the write request signal of the playing data.
18 ~ 25	IDB7 ~ IDB0	I	These are internal buses of ECC (LSB~MSB).
26 ~ 33	DB7 ~ DB0	I/O	Data buses (LSB~MSB).
34	ORBCP	I	Inputs the latch clock signal of ECC output port B.
35	ORACP	I	Inputs the latch clock signal of ECC output port A.
36	WRQT	I	Inputs the write request signal from the GLU.
37	RRQT	I	Inputs the read request signal from the GLU.
38	GND	I	For ground connection.
39	TEST	I	This is the terminal for IC test. Normally this is for ground connection.
40	NEXT	I	For syndrome calculation. Inputs the page increment signal.
41	SNDSTT	I	Inputs a signal to start syndrome calculation.
42	PQKIR	O	Outputs the switching signals of the C1 and C2.
43	MUTEIN	I	Inputs the muting signal of the digital data.
44	GLUR	O	Outputs a signal to reset the ECC program counter.
45	HFCH	O	Outputs the system clock signal of the ECC.
46	SSHIF	O	Outputs the clock signal for the syndrome calculation.
47	SLATCH	O	Outputs the latch clock signal for the results of the syndrome calculation.
48	PQRST	O	Outputs the reset pulse of the syndrome register.
49	INACP	O	Outputs the latch signal for input port A.
50 ~ 58	A0 ~ A8	O	These are the output terminals for memory addresses.
59	V_{CC}	I	To be connected to +5V.
60	GND	I	For ground connection.
61	RAMWE	O	Outputs the write enable signal for memory.
62 ~ 64	A9 ~ A11	O	These are the output terminals for memory addresses.
65	RAMOE	O	Outputs the output enable signal for memory.

Pin No.	Mark	I/O	Function
66	A12	O	These are output terminals for memory addresses.
67	A13	O	
68	VCOPL	I	Not used, open.
69	PLL4	O	Not used, open.
70	PLL3	O	Not used, open.
71	PLL2	O	Not used, open.
72	PLL1	O	Not used, open.
73	PLLD	O	Not used, open.
74	PLLC	I	
75	EXOR	O	Outputs the PLL phase comparison signal for the master clock.
76	CK28M	I	Inputs a signal of 28.224MHz generated by PLL.
77	HEACH	O	Outputs the switching signal for the head amplifier.
78	PBSG	I	Inputs the playback signal.
79	RCSG	O	Outputs the recording signal.
80	TSCK	O	Outputs the drum PG synchronization signal of 33.33Hz.
81	LEVDA	I/O	Inputs the serial control data and outputs the serial level meter data.
82	LEVSY	I	Inputs the enable signal of the control data.
83	LEVSF	I	Inputs the shift clock signal of the control data.
84	HSW	I	Inputs the drum PG signal.
85	GND	I	For ground connection.
86	ATFMAD	O	Outputs the ATF ID signal of 130kHz.
87	SEGCP	O	Outputs the segment clock signal of 66.66Hz.
88	DFLAG	I/O	This is the terminal for error flag of digital signal.
89	MUTE	O	Outputs the muting signal of the D/A converter. (Not used, open)
90	ADDAT	I	Inputs the A/D data.
91	LR	I	Outputs the switching signal to L or R channel.
92	DLOAD	I	Outputs the data load clock signals for D/A and A/D.
93	DSIFT	I	Outputs the data shift clock signals for D/A and A/D.
94	DADAT	I	Outputs the D/A data.
95	PLLCP	O	Not used, open.
96	DEMCOD	O	

- **IC103 (SAQ0003-1): ECC**

Pin No.	Mark	I/O	Function
1 ∫ 8	IDB0 ∫ IDB7	I/O	These are for ECC internal busses (LSB~MSB).
9	GND	I	For ground connection.
10	GND		
11	NC	—	No connection.
12	S-RST	I	This is the input terminal to reset the program counter of the sub-code.
13	S-DF1	I	Inputs the done flag 1 signal of the sub-code.
14	S-DF2	I	Inputs the done flag 2 signal of the sub-code.
15	S-CLR	I	This is the input terminal to clear the syndrome register of the sub-code.
16	S-LACT	I	Inputs the latch clock signal for the results of the syndrome calculation of the sub-code.
17	S-SCLK	I	Inputs the clock signal for syndrome calculation of the sub-code.
18 ∫ 25	SDB0 ∫ SDB7	I	Input the sub-code data (LSB~MSB).
26	SST1	O	For output of the ST-1 signal of the sub-code (not used, open).
27 ∫ 30	TD0 ∫ TD3	O	For output test (not used, open).
31 ∫ 38	TD4 ∫ TD11	O	For output test (not used, open).
39	TEST	O	For IC test (these are normally for ground connection).
40	TDS-A		
41	TDS-B		
42	NC	—	No connection.
43	IBS-A	O	For output test of the internal bus select signal.
44	IBS-B		
45	IBS-C		
46	IBS-D		
47	IBS-E		
48	PQ2	I	Inputs the recording and playback signals.
49	Vcc	I	To be connected to +5V.
50	GND	I	For ground connection.
51	GND		
52	SUB1	I	Inputs the select signal of the sub code.
53	SUB2	I	Normally to be connected to +5V or for input of the select signal of the sub-code.
54	PQ1	I	Inputs C1 area signal of the sub-code.
55	PG	I	Normally to be connected to +5V or for input the gate control signal for the parity calculation.
56	INA-CP	I	Inputs the latch pulse to input port A.
57	CLR	I	This is the input terminal to reset the register for the syndrome calculation.
58	LATC	I	Inputs the latch signal for the results of the syndrome calculation.
59	SCLK	I	Inputs the clock signal for the syncrome calculation.
60	CK	I	Inputs the system clock signal.
61	RST	I	This is the input terminal to reset the ECC program counter.
62	DF-1	I	Inputs the termination signal of the syndrome calculation.
63	DF-2	I	Inputs the C1 and C2 switching signals.
64	ST0	O	This is the output terminal to start the syndrome calculation.
65	ST1	O	This is the output terminal for the page increment of the syndrome calculation.
66	ST2	O	Outputs the memory read request signal.
67	ST3	O	Outputs the memory write request signal.
68	ST4	—	Not used, open.
69	ST5	O	Outputs the results of C1 check.
70	ORA	O	Outputs the latch clock signal of output port A.
71	ORB	O	Outputs the latch clock signal of output port B.
72	ORC	O	Outputs the latch clock signal of output port C.
73 ∫ 80	DB0 ∫ DB7	I	Input the data of LSB~MSB.

- **IC106 (MN18982SDJ1): SBP**

Pin No.	Mark	I/O	Function
1	V_{SS}	I	For ground connection.
2 ~ 9	SPDT0 ~ SPDT7	I/O	These are addresses and data buses.
10	NSPSTB	I	Inputs the strobe signal for signal processing.
11	OFSCP	I	——
12	NSPRDY	O	This is the output terminal for the data transfer.
13	SBPTST	—	Not used, open.
14	TRK1	I	Inputs the ATF synchronization data.
15	FLGCK	O	Outputs the strobe pulse.
16	FLGDA	O	PACK OK, undetected PCMID and PND, SUBID valid, PLL data, SID OK and speed mode.
17	TEST	O	Outputs the control signal of external access to the sub-code RAM.
18	CLEAN	O	——
19	NREC	O	Outputs the high level signal during playback and outputs the low level signal during recording.
20	DSCP	O	——
21	TXD	—	Not used, open.
22	RXD		
23	TRCLK		
24	TCIQ		
25	IRQB	I	FS select terminal.
26	NSPCS	I	Inputs the chip select signal for the signal processing.
27	$\overline{EX1}$	—	For control of the chip extension (not used, open).
28	$\overline{EX2}$		
29	7MCK	I	Input the master clock signal of 7.056MHz.
30	OSC2	—	Not used, open.
31	RST	I	Inputs the reset signal.
32	VDD	I	For power connection.
33 ~ 40	SBPD0 ~ SBPD7	O	Output signals to set the muting.
41	HSW	I	Inputs the head switching signal.

Pin No.	Mark	I/O	Function
42	TSCK	I	Inputs the drum PG synchronization signal of 33.33Hz.
43	SEGCP	I	Inputs the segment clock of 66.66Hz.
44	DLOCK2	—	——
45	LEVSY	O	Outputs the control data enable signal.
46	LEVSF	O	Outputs the control data shift clock signal.
47	LEVDA	I/O	Inputs the serial control data and outputs the serial level meter data.
48	DFSSEL	O	Outputs the FS select signal.
49 ~ 56	PD0 ~ PD7	I/O	These are the terminals for the PACK data busses for computer (LSB~MSB).
57	PLDT	O	——
58	PLCK	O	Outputs the clock signal.
59	MICONR	O	Outputs the PACK data read request signal.
60	MICONW	O	Outputs the PACK data write request signal.
61	SIDSH	O	Outputs the shift clock signal of the sub-code ID.
62	SIDDA	I/O	Inputs and outputs the serial data of the sub-code ID.
63	MID-S	O	Outputs the shift clock signal of the main ID.
64	MID-D	I/O	Inputs and outputs the serial data of the main ID.

- **IC105 (MN53020SDF): IFGA**

Pin No.	Mark	I/O	Function
1 ~ 7	SBPD1 ~ SBPD7	I	Input signals to set the muting.
8	DLOCK2	—	——
9	DFSSEL	I	FS select terminal.
10	SVDD	I	To be connected to +5V.
11	PLDT	I	——
12	SV_{SS}	I	For ground connection.
13	PLCK	I	Inputs the clock signal.
14	MCW	I	Inputs the PACK data write request signal.
15	OFSCP	O	——
16	CLREN	I	——

Pin No.	Mark	I/O	Function
17	NREC	I	Inputs the high level signal during playback and inputs the low level signal during recording.
18	DSCP	I	——
19	MCK7	O	Outputs the master clock signal.
20	NBLK	O	Outputs the signal that detects the signalless mode.
21	BLKSEL	I	Inputs the switching signal of the non-recorded segment level. (At −60dB level, this signal will be inputted at high. At −40dB level, this signal will be inputted at low.)
22	APR	I	Inputs the switching signal of the recording and playback of the amplifier.
23	NRST2	I	Connects the +5V power terminal for the reset signal.
24	MCK3R5	O	Outputs the master clock signal for the panel control of the microcomputer.
25	SVSGCP	O	Outputs the SEGCP signal of 66.66Hz.
26	SP2	I	Inputs the sample hold control signal.
27	SRPR	O	Outputs the switching signal of the recording and playback. (At a "High" level...recording At a "Low" level...playback)
28	TEST 1	I	For input test (normally for ground connection).
29	TEST 2		
30	TEST 3		
31	GND	I	For ground connection.
32	TP1	I	For input test (not used, open).
33	VDD2	I	To be connected to +5V.
34	TP2	I	For input test (not used, open).
35	TP3	I	
36	PLL VAR	O	——
37	PLL18M	I	——
38	ADD	I	Inputs the A/D data.
39	DFD	O	Outputs the D/A data.
40	DSM	O	Outputs the switching signal of the D/A parallel R/L channels. At a "High" level...right channel
41	DOD	O	Outputs the digital data signal.
42	DID	I	Inputs the digital data signal.
43	ADDAT	O	Outputs the A/D data.
44	DADAT	I	Inputs the D/A data.

Pin No.	Mark	I/O	Function
45	TIDP	O	Outputs terminal for the flag counter (not used).
46	MCK28	I	Input a signal of 28.224MHz generated by the PLL.
47	MEACH	I	Inputs the switching signal for the head amplifier.
48	LR2	I	Outputs the double-length clock signal of L/R channels (96kHz).
49	LR	I	Outputs the switching signal of L or R channel (48kHz). (At "High" level...left channel At "Low" level...right channel)
50	SEGCP	I	Inputs the segment clock signal of 66.66Hz.
51	HSW	I	Inputs the drum PG signal.
52	GND	I	For ground connection.
53	DSIFT	I	Inputs the shift clock signal of the A/D and D/A data.
54	SVDD	I	To be connected to +5V.
55	TSCK	I	Inputs the drum PG synchronization signal of 33.33Hz.
56	HFCH	I	Inputs the ECC system clock signal.
57	CDCP2	O	Outputs the digital data during recording. Outputs the ID code shift clock signal during playback.
58	DREST	I	This is the input terminal to clear the syndrome calculation register of the sub-code during recording. Inputs the signal to clear the data symbol counter in the block during playback.
59	DCP	I	Inputs the shift clock signal of the main ID code during recording. Inputs the 8-bit latch clock signal of the playback data.
60	CDCP 1	I	Inputs the digital data during recording. Inputs the shift clock signal of the ID code during playback.
61	D-LOAD	I	Inputs the load clock signal for the D/A and A/D data.
62	DSYNC	I	Inputs the quadruple-length signal of L/R channel (192kHz).
63	VCDIV	O	Outputs the PLL clock signal for the digital input.
64	DIGO	I	Inputs the digital signal.
65	MSYNC	I	Inputs the synchronous detection signal of the playback signal.
66	IDP	I	Inputs a signal for the parity check of the ID code of the playback signal.
67	DIGI	O	Outputs the digital signal.
68	MICOMW	O	Outputs the PACK data write request signal.
69	SOE	I	Inputs the RAM input enable signal of the sub-code.
70	SWE	I	Inputs the RAM write enable signal of the sub-code.

Pin No.	Mark	I/O	Function
71	SAD 9	I	These are the sub-code RAM addresses (~MSB).
72	SAD 8		
73	VDD	I	To be connected to +5V.
74	SAD 7	I	This is a sub-code RAM address.
75	GND	I	For ground connection.
76 ~ 82	SAD6 ~ SAD0	I	These are sub-code RAM addresses (LSB~).
83	D24M	I	Inputs the PLL clock signal for the digital input.
84	SBPD 0	I	Inputs a signal to set the muting.

- **IC107 (MN188322SDK1): SYSTEM CONTROL**

Pin No.	Mark	I/O	Function
1 ~ 3	NC	—	Not used.
4	RFENV	I	Inputs the envelope signal for detection of the tape end and beginning.
5	NBLK	I	Inputs the signal that detects the signalless mode.
6	NCYLOK 0	I	Input the cylinder lock signal.
7	NCYLOK 1		
8	CAPER	I	Inputs commands for the rotation direction of the capstan servo.
9	NCAPLOK	I	Inputs the capstan lock signal.
10 ~ 12	TH3 ~ TH1	I	Inputs the tape hole detection signal.
13	NC	—	Not used, open.
14	NC		
15 ~ 17	TH6 ~ TH4	I	Inputs the tape hole detection signal.
18	NCAPSL	O	Outputs the latch signal for the capstan servo.
19	NRELSL	O	Outputs the latch signal for the reel servo.
20	CY GAIN	O	Outputs the gain down control signal of the cylinder servo.
21	RLTLK	O	This is the output terminal to control the speed and phase of the capstan servo.
22	NC	—	Not used, open.
23	M MOD	O	Output signals to control the rotation speed and direction of the mode and cassette loading motors.
24	M FWD		
25	M REV		
26	GND	I	For ground connection.
27	NC	—	Not used, open.
28	NRST 1	I	Inputs the reset signal at a low level.
29 ~ 34	NC	—	Not used.
35	BOT	I	Inputs the tape beginning detection signal.
36	EOT	I	Inputs the tape end detection signal.
37	OPEN	I	Inputs the open/close detection signal.
38	CLOSE		
39	DEW	I	Inputs the detection signal for the dew sensor.
40 ~ 42	MMOD 2 ~ MMOD 0	I	Input the tape mode detection signal.
43	NPRDY	I	Inputs the transfer command of the data from the panel control.
44	7 MCK	I	Inputs the master clock signal.
45	NC	—	Not used, open.
46	V_{SS}	I	For ground connection.
47	NC	—	Not used, open.
48	NC		
49	V_{DD}	I	To be connected to +5V.
50	NPMUT	I	Inputs the power mute signal.
51	RLFGTU	I	Inputs the FG pulse of the take-up reel.
52	RLFGSU	I	Inputs the FG pulse of the supply reel.
53 ~ 59	SPDT 7 ~ SPDT 1	I/O	These terminals are addresses and data buses.
60 ~ 65	NC	—	Not used.

Pin No.	Mark	I/O	Function
66	SPDT 0	I/O	Address and data bus.
67 ≀ 70	NC	—	Not used, open.
71	TRCLK	I/O	For input and output of the serial data.
72	RXD	I	Inputs the serial data.
73	TXD	O	Outputs the serial data.
74	NSPSTB	O	Outputs the strobe signal for signal processing.
75	NSPCS	O	Outputs the chip select signal for signal processing.
76	RST OUT	O	Outputs the reset signal.
77	NC	—	Not used, open.
78	INH (COPY)	I	For ground connection.
79	DRECFS	I	FS select terminal.
80	ARECFS	I	Sampling frequency select terminal.
81	NSPRDY	I	Inputs the data transfer command.
82	NC	—	Not used, open.
83	TP	O	Outputs the track pitch signal.
84	AF REC	—	Not used, open.
85	SRVMD	O	Outputs the data of the servo mode.
86	SPEMSK	O	Outputs the data of the PCM playback.
87	NC	—	Not used, open.
88	RHHET	O	Outputs the signal to turn on the heater.
89	AR/$\overline{P}$	O	Outputs the recording/playback switching signal of the amplifier.
90	SG MTG	O	Outputs the signal to set the muting.
91 ≀ 96	NC	—	Not used.
97	ATT	O	Outputs the attenuator signal:
98	BLKSEL	O	Outputs the switching signal of the non-recorded segment level. (At −60dB level, this signal will be inputted at high. At −40dB level, this signal will be inputted at low.)
99	NC	—	Not used.
100	NEMP	O	Outputs the emphasis signal.

Pin No.	Mark	I/O	Function
101 • 102	NC	—	Not used.
103 ≀ 108	SRVDT 5 ≀ SRVDT 0	O	Output the summed data of the reel FG speed.
109	V_{DD}	I	To be connected to +5V.
110 ≀ 118	NC	—	Not used, open.
119	V_{SS}	I	For ground connection.
120	TSCK	I	Inputs the timing clock signal of 33.33Hz.
121	HSW	I	Inputs the head switching signal of 33.33Hz.
122 ≀ 124	NC	—	Not used.

- **IC104 (MN52080SDH): MAIN SERVO**

Pin No.	Mark	I/O	Function
1	V_{SS}	I	For ground connection.
2	CYFG	I	Inputs the signal of the cylinder FG (40 pulses/rev).
3	RLFGT	I	Inputs the signal of the take-up reel FG (40 pulses/rev).
4	RLFGS	I	Inputs the signal of the supply reel FG (40 pulses/rev).
5	CPFG 2	I	Inputs the signal of the capstan FG (250 pulses/rev).
6	FILSL 0	O	Outputs the control signal of the capstan motor driving.
7	FILST 1	—	Not used, open.
8	CPFG 1	I	Inputs the signal of the capstan FG (250 pulses/rev).
9	CYPG 1	I	Inputs the signal of the cylinder PG (1 pulse/rev).
10	V_{DD}	I	To be connected to +5V.
11	NC	—	Not used, open.
12	V_{SS}	I	For ground connection.
13	TC	—	Not used, open.

Pin No.	Mark	I/O	Function
14	SP1	O	Output the sample hold control signal.
15	SP2		
16	SPE		
17	SRVDL	O	Outputs the signal to connect the ATF circuit.
18	SYNC	I	Inputs the RF detection signal.
19	ATFWDN	O	Outputs the data about the ATF area.
20	NC	—	Not used, open.
21	V_{DD}	I	To be connected to +5V.
22	V_{SS}	I	For ground connection.
23	TSTEN	—	Not used, open.
24 ~ 26	TSTSL 0 ~ TSTSL 2	—	Not used, open.
27	ATFSL	—	Not used, open.
28	NC	—	Not used, open.
29	NC		
30	NC		
31	V_{SS}	I	For ground connection.
32	NC	—	Not used, open.
33	V_{DD}	I	To be connected to +5V.
34	NC	—	Not used, open.
35	SP2D	O	Outputs the sample hold control signal.
36	ROT	I	Input the ROT (SEGCP) of 66.66Hz.
37	CLK	I	Inputs the system clock signal of 9.408MHz.
38	ROT 2	I	Inputs the 1/2 ROT of 33.33Hz.
39	HSW	O	Outputs the head switch signal of 33.33Hz.
40	TRK 1	O	Outputs the synchronous data of the ATF.
41	OROT 2	—	Not used, open.
42	V_{DD}	I	To be connected to +5V.
43	V_{SS}	I	For ground connection.
44	NRLSL	I	Inputs the SRVD latch command of the reel.
45	NCPSL	I	Inputs the SRVD latch command of the capstan.

Pin No.	Mark	I/O	Function
46 ~ 51	SRVD 0 ~ SRVD 5	I	Input the summed data of the reel FG speed.
52	V_{SS}	I	For ground connection.
53	NLNROK	—	Not used, open.
54	V_{DD}	I	To be connected to +5V.
55	NCPK	O	Outputs the data of the capstan lock.
56	CAPER	O	Outputs the data of the rotation direction of the capstan.
57	NCYK 1	O	Outputs the data of the cylinder lock.
58	NCYK 0		
59	SPEMSK	I	Inputs the data of the PCM playback.
60	SRVMD	I	Inputs the switching signal of the CAP servo mode.
61	TPH	I	Inputs a signal for the track pitch. (At a "High" level...13.6μm At a "Low" level...20.4μm)
62	NRST 2	I	Inputs the reset signal at a low level.
63	V_{DD}	I	To be connected to +5V.
64	V_{SS}	I	For ground connection.
65	NC	—	Not used, open.
66	SNVLD 0	—	Not used, open.
67	SNVLD 1		
68	NC	—	Not used, open.
69	TSTCLK	I	For input test (normally for ground connection).
70 ~ 72	TEST 0 ~ TEST 2	I	For input test (normally for ground connection).
73	V_{DD}	I	To be connected to +5V.
74	NC	—	Not used, open.
75	V_{SS}	I	For ground connection.
76	TEST P	I	For input test (normally for ground connection).
77	TEST S	O	This is the input terminal of the signal to switch to the cut-off frequency for the compensating circuit when the capstan servo rotates slowly.
78	COSL	O	
79	TL	O	Outputs the torque limit signal of the capstan motor.
80	CAPED	O	Outputs the command for the rotation direction of the capstan.

Pin No.	Mark	I/O	Function
81	PWMCAP	O	Outputs the 73.5kHz PWM of the capstan motor.
82	CYLED	O	Outputs the command for the rotation direction of the cylinder.
83	PWMCYL	O	Outputs the 73.5kHz PWM of the cylinder motor.
84	V_{DD}	I	To be connected to +5V.

- **IC201 (AN8320S): SUB-SERVO & ATF**

Pin No.	Mark	I/O	Function
1	CAPFG 1	O	Outputs the capstan FG signal.
2	CAPFG 1	I	Inputs the capstan FG signal (250 pulses/rev).
3	NFC	I	This is the input terminal to connect with the condenser of the NF loop.
4	CYLDPG	O	Outputs the cylinder PG signal (1 pulse/rev).
5	PGWA	I	This is the input terminal to connect with the VR for adjustment of the pulse width of the PG signal.
6	CYLPG	I	Inputs the cylinder PG signal (1 pulse/rev).
7	GND	I	For ground connection.
8	SVRF	I	Inputs the envelope detection signal.
9	CDD	I	This is the input terminal for connection with the detection circuit for the pilot signal's peak.
10	PD0	O	Outputs the detection signal for the pilot signal's peak.
11	PD1	I	Inputs the detection signal for the pilot signal's peak.
12	SP1	I	Inputs the sample hold control signal.
13	SP2		
14	Vspe	I	Inputs the reference voltage for the detection circuit of the difference of the pilot voltages.
15	SPE	I	Inputs the sample hold control signal.
16	CSH	I	Input terminal for connection with the condenser in the detection circuit for the peak voltage of the pilot signal .
17	ATFTER	O	Outputs the ATF control signal.
18	NFC	I	This is the input terminal to connect with the condenser of the NF loop.
19	VCC 1	I	To be connected to +5V.
20	SRVDL	I	This is the input terminal to connect with the ATF circuit.
21	NC	—	Not used, open.
22	Vref	I	This is the input terminal to set the reference voltage.
23 ~ 26	NC	—	Not used, open.
27	CYLDFG	O	Outputs the cylinder FG signal (40 pulses/rev).
28	CYLDFG	I	Inputs the cylinder FG signal (40 pulses/rev).
29	CYLDFG	O	Outputs the cylinder FG signal (40 pulses/rev).
30	CYLFG	I	Inputs the cylinder FG signal (40 pulses/rev).
31	STNDBY	I	To be connected to +5V.
32	RLFGT	I	Inputs the take-up reel FG signal (40 pulses/rev).
33	RLFGT	O	Outputs the take-up reel FG signal (40 pulses/rev).
34	RLFGT	I	Inputs the take-up reel FG signal (40 pulses/rev).
35	RLDFGT	O	Outputs the take-up reel FG signal (40 pulses/rev).
36	RLDFGS	O	Outputs the supply reel FG signal (40 pulses/rev).
37	RLDFGS	I	Inputs the supply reel FG signal (40 pulses/rev).
38	RLFGS	O	Outputs the supply reel FG signal (40 pulses/rev).
39	RLFGS	I	Inputs the supply reel FG signal (40 pulses/rev).
40	V_{CC} 2	I	To be connected to +5V.
41	CAPFG 2	O	Outputs the capstan FG signal (250 pulses/rev).
42	CAPFG 2	I	Inputs the capstan FG signal (250 pulses/rev).
43	CAPFG 2	O	Outputs the capstan FG signal (250 pulses/rev).
44	CAPFG 2	I	Inputs the capstan FG signal (250 pulses/rev).
45	CAPDFG 2	O	Outputs the capstan FG signal (250 pulses/rev).
46	CAPFIL	I	Inputs the control signal for the capstan motor driving.
47	CAPDFG 1	O	Outputs the capstan FG signal (250 pulses/rev).
48	CAPDFG 1	I	Inputs the capstan FG signal (250 pulses/rev).

- **IC603 (M50754-430FP): PANEL CONTROL**

Pin No.	Mark	I/O	Function
1	V_{SS}	I	For ground connection.
2	P27 (LEVSF)	I	Inputs the control data shift clock signal.
3	P26 (LEVDA)	I	Inputs the level meter data.
4	P25	O	This is the output terminal for the digital LED display.

Pin No.	Mark	I/O	Function
5	P24	O	This is the output terminal for the analog LED display.
6 ~ 9	P23 ~ P20	I	Input the key-return signal.
10	NC	—	Not used.
11	NP RDY	O	Outputs the ready signal.
12	NTRCLK	I/O	Inputs and outputs the clock signal of the serial data.
13	RXD	O	Sends the serial data.
14	TXD	I	Receives the serial data.
15 ~ 18	P33 ~ P30	O	Outputs the signals for LED displays. (P33: edit display P32: pause display P31: recording display P30: playback display)
19	INT 1	I	Inputs the remote control signal.
20	INT 2 (LEVSY)	I	Inputs the control data enable signal.
21	CNV_{SS}	I	For ground connection.
22	$\overline{RESET}$	I	Input the reset signal at a low level.
23	NC	—	Not used, open.
24	X_{IN} (MCK3R5)	I	Inputs the master clock signal.
25	X_{OUT}	O	Not used, open.
26	NC	—	Not used, open.
27	X_{CIN}	I	For ground connection.
28	X_{COUT}	O	Not used.
29	X_{SS}	I	For ground connection.
30	NC	—	Not used, open.
31 ~ 34	P57 ~ P54	I	Input the key-return signal.
35	VP	I	To be connected to −27V.
36 • 37	P51 • P50	O	Output the signal for the display tube.
38 ~ 45	P17 ~ P10	O	Output the signal for the display tube.
46	NC	—	Not used, open.

Pin No.	Mark	I/O	Function
47 ~ 54	PO7 ~ PO0	O	Output the signal for the display tube.
55 ~ 62	P47 ~ P40	O	Output the signal for the display tube.
63 • 64	V_{CC}	I	To be connected to +5V.
65	V_{SS}	I	For ground connection.
66 ~ 71	P65 ~ P60	O	Output the signal for the key scan and the display tube.
72	NC	—	Not used, open.

- **IC502 (MN53010PEH): SERIAL/PARALLEL CONVERTER**

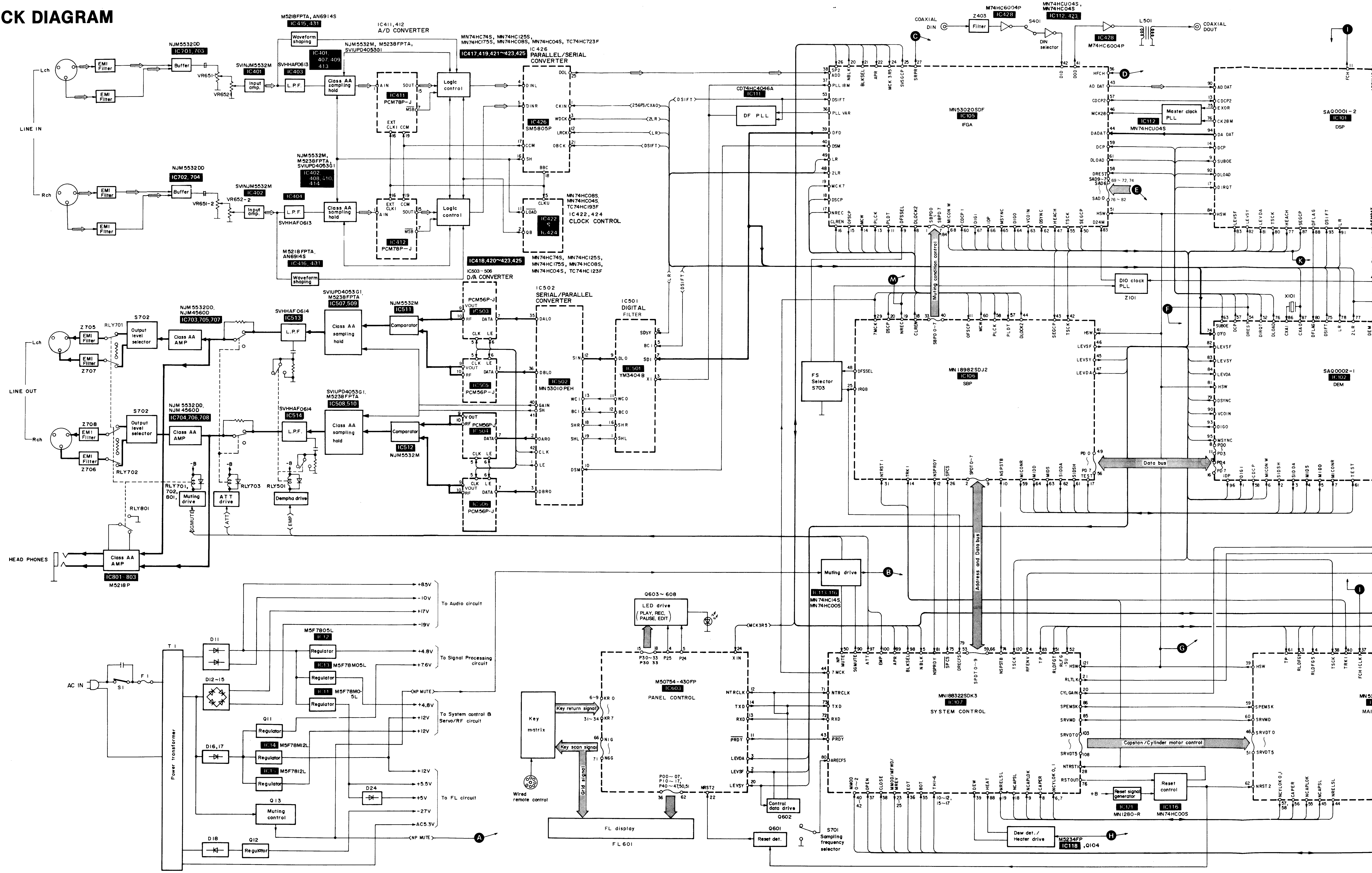
Pin No.	Mark	I/O	Function
1	WCO	O	Outputs the word clock of DALO, DBLO, DARO, and DBRO.
2	DARO	O	Outputs the data on the positive side of the right channel.
3	DBRO	O	Outputs the data on the negative side of the right channel.
4	RST	O	This is the output terminal to reset the outputted data to zero.
5	SVDD	I	To be connected to +5V.
6	SVSS	I	For ground connection.
7	F2DAC	I	At a "High" level, this terminal inputs the 2 DAC signal of 18 bits. At a "Low" level, this inputs the 2 DAC signal of 17 bits.
8	FLOAT	I	At a "High" level, this inputs the 4 DAC signal of 18 bits. At a "Low" level, this inputs the 4 DAC signal of 17 bits.
9	PHASE	I	At a "High" level, this inputs a signal to invert the phase. At a "Low" level, this inputs a signal for normal phase.
10	LRCK	I	This is the input terminal of the inverter signal.
11	NLRCK	O	This is the output terminal of the inverted input signal of Pin 10.
12	SIN	I	This is the data input terminal.
13	WCI	I	This is the input terminal of the word clock of the input data.
14	BCI	I	This is the input terminal of the bit clock of the input data.
15	V_{SS}	I	For ground connection.
16	NC	—	Not used.

<table>
<tr><th>Pin No.</th><th>Mark</th><th>I/O</th><th colspan="4">Function</th></tr>
<tr><td>17</td><td>VDD2</td><td>I</td><td colspan="4">To be connected to +5V.</td></tr>
<tr><td>18</td><td>SHL</td><td>I</td><td colspan="4">Inputs the deglitcher signal of the right channel.</td></tr>
<tr><td>19</td><td>SHL</td><td>I</td><td colspan="4">Inputs the deglitcher signal of the left channel.</td></tr>
<tr><td>20 ~ 31</td><td>NC</td><td>—</td><td colspan="4">Not used.</td></tr>
<tr><td rowspan="2">32
•
33</td><td rowspan="2">NTEST 1
•
NTEST 2</td><td rowspan="2">I</td><td>Normal mode (delay: 180ms)</td><td>Test mode (delay: 1.45ms)</td><td>Test mode (delay: 0.73ms)</td><td>Test mode (delay: 0ms)</td></tr>
<tr><td>H
H</td><td>L
H</td><td>H
L</td><td>L
L</td></tr>
<tr><td>34</td><td>NTEST 3</td><td>I</td><td colspan="4">This is the input terminal to clear the internal flip-flop at a “Low” level. At a “High” level...Normal mode.</td></tr>
<tr><td>35</td><td>DALO</td><td>O</td><td colspan="4">Outputs the data on the positive side of the left channel.</td></tr>
<tr><td>36</td><td>DBLO</td><td>O</td><td colspan="4">Outputs the data on the negative side of the left channel.</td></tr>
<tr><td>37</td><td>VDD</td><td>I</td><td colspan="4">To be connected to +5V.</td></tr>
<tr><td>38</td><td>$V_{SS}2$</td><td>I</td><td colspan="4">For ground connection.</td></tr>
<tr><td>39</td><td>NC</td><td>—</td><td colspan="4">Not used, to be connected to ±5V.</td></tr>
<tr><td>40</td><td>GAIN</td><td>O</td><td colspan="4">This is the output terminal of the gain switching signal. At a “High” level...Big signal of 0∼−12dB At a “Low” level...Small signal less than −12dB.</td></tr>
<tr><td>41</td><td>SH</td><td>O</td><td colspan="4">This is the output terminal of the deglitcher signal.
At a “High” level...sample. At a “Low” level...hold.</td></tr>
<tr><td>42</td><td>BCO</td><td>O</td><td colspan="4">This is the output terinal of the bit clock of the output data.</td></tr>
</table>

- **IC426 (SM5805P): DIGITAL FILTER**

<table>
<tr><th>Pin No.</th><th>Mark</th><th>I/O</th><th colspan="2">Function</th></tr>
<tr><td>1</td><td>CKIN</td><td>I</td><td colspan="2">This is the input terminal of the clock signal that is a basis of the system clock.</td></tr>
<tr><td>2</td><td>$\overline{\text{CKSE}}$</td><td>I</td><td colspan="2">This is the input terminal of the signal for the rate of the frequency division.
(At a “High” level or when this terminal is open...f CKIN=256fs
At a “Low” level...f CKIN=192fs)</td></tr>
<tr><td>3</td><td>WDCK</td><td>I</td><td colspan="2">This is the input terminal of the dual-rate clock signal (2fs).</td></tr>
<tr><td>4</td><td>DINL</td><td>I</td><td>Inputs the left-channel data.</td><td rowspan="2">When the serial data of the right and left channels, both terminals are short-circuited.</td></tr>
<tr><td>5</td><td>DINR</td><td>I</td><td>Inputs the right-channel data.</td></tr>
<tr><td>6</td><td>$\overline{\text{IPARA}}$</td><td>I</td><td colspan="2">This is the input terminal of the signal for the timing of the input data word.
(At a “High” level or when this terminal is open ...LR serial
At a “Low” level...LR parallel)</td></tr>
<tr><td>7</td><td>$\overline{\text{ILSB}}$</td><td>I</td><td colspan="2">This is the input terminal to select the order of the input data bits.
(At a “High” level or when this terminal is open ...MSB is the first
At a “Low” level...LSB is the first.)</td></tr>
<tr><td>8</td><td>IBCK</td><td>I</td><td colspan="2">Inputs the bit clock signal of the input data.</td></tr>
<tr><td>9</td><td>IBO</td><td>O</td><td colspan="2">This is the output terminal of the bit clock for the internal input data.</td></tr>
<tr><td>10</td><td>$\overline{\text{IBPOL}}$</td><td>I</td><td colspan="2">This is the input terminal to select the polarity of the bit clock for the bit clock.</td></tr>
<tr><td>11</td><td>U/$\overline{\text{O}}$</td><td>I</td><td colspan="2">This is the input terminal to select the decibel meter or interpolater operation mode. At a “High” level or when this terminal is open...the decibel meter operates in the recording mode. At a “Low” level...the interpolater operates in the playback mode.</td></tr>
<tr><td>12</td><td>LRCK</td><td>I</td><td colspan="2">This is the input terminal of the clock signal of the basic sample rate (fs).</td></tr>
<tr><td>13</td><td>$\overline{\text{LRPOL}}$</td><td>I</td><td colspan="2">This is the input terminal to select the polarity of the LRCK.
At a “High” or when this terminal is open...the left channel is “Low” and the right channel is “High” .
At a “Low” level...the left channel is “High” and the right channel is “Low” .</td></tr>
<tr><td>14</td><td>V_{SS}</td><td>I</td><td colspan="2">For ground connection.</td></tr>
<tr><td>15</td><td>$\overline{\text{OFB}}$</td><td>I</td><td colspan="2">This is the input terminal to select the form of the input data when U/O=H, or the form of the output data when U/O=L.
(At a “High” level or when this terminal is open...the datas are in two’s complement form.
At a “Low” level...the datas are in offset bynary form.)</td></tr>
<tr><td>16</td><td>SH</td><td>O</td><td>Outputs the converter control signal.</td><td rowspan="2">The ADC control signal is out-putted when the recording mode is U/O=H. The DAC control signal is out-putted when the playback mode is U/O=L.</td></tr>
<tr><td>17</td><td>CC</td><td>O</td><td>Outputs the converter control signal.</td></tr>
<tr><td>18</td><td>BBC</td><td>O</td><td colspan="2">This is the output terminal of the bit clock for the PCM 77 Burr Brown A/D-D/A converter.</td></tr>
<tr><td>19</td><td>$\overline{\text{OBPOL}}$</td><td>I</td><td colspan="2">This is the input terminal to select the polarity of the bit clock for the output data.</td></tr>
<tr><td>20</td><td>OBO</td><td>O</td><td colspan="2">This is the output terminal of the bit clock for the internal output data.</td></tr>
<tr><td>21</td><td>OBCK</td><td>I</td><td colspan="2">This is the input terminal of the bit clock of the output data.</td></tr>
<tr><td>22</td><td>$\overline{\text{OLSB}}$</td><td>I</td><td colspan="2">This is the input to select the order of the output data bits.
(At a “High” level or when this terminal is open...MSB is the first.
At a “Low” level...MSB is the first.)</td></tr>
<tr><td>23</td><td>$\overline{\text{OPARA}}$</td><td>I</td><td colspan="2">This is the input terminal of the signal for the timing of the output data word.
(At a “High” level or when this terminal is open...LR serial.
At a “Low” level...LR parallel.)</td></tr>
<tr><td>24</td><td>DOR</td><td>O</td><td colspan="2">Outputs the data of the right channel (OPARA=L).
The deglitch signal of DAC (OPARA=H).</td></tr>
<tr><td>25</td><td>DOL</td><td>O</td><td colspan="2">Outputs the data of the left channel (OPARA=L).
Output the data of the left/right channel (OPARA=H).</td></tr>
<tr><td>26</td><td>$\overline{\text{ODLY}}$</td><td>I</td><td colspan="2">This is the input terminal of the signal for the timing of the output data word.
(At “Low” level when this terminal is delayed.
At “High” level when this terminal is not delayed.)</td></tr>
<tr><td>27</td><td>OLE</td><td>O</td><td colspan="2">This is the output terminal of the output data.</td></tr>
<tr><td>28</td><td>V_{DD}</td><td>I</td><td colspan="2">To be connected to +5V.</td></tr>
</table>

BLOCK DIAGRAM


LINE IN
Lch
Rch
EMI Filter
Buffer
NJM5532DD
IC701, 703
IC702, 704
VR651
VR652
VR651-2
VR652-2
SVINJM5532M
IC401
IC402
Input amp.
L.P.F.
SVHHAF0613
IC403
IC404
M5218FPTA, AN6914S
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Waveform shaping
NJM5532M, M5238FPTA, SVIUPD4053GI
Class AA sampling hold
IC401, 407, 409, 413
IC402, 408, 410, 414
IC411, 412
A/D CONVERTER
IC411
PCM78P-J
IC412
Logic control
MN74HC74S, MN74HC125S, MN74HC175S, MN74HC08S, MN74HC04S, TC74HC723F
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IC426
PARALLEL/SERIAL CONVERTER
SM5805P
IC422 ~ IC424
IC422, 424
CLOCK CONTROL
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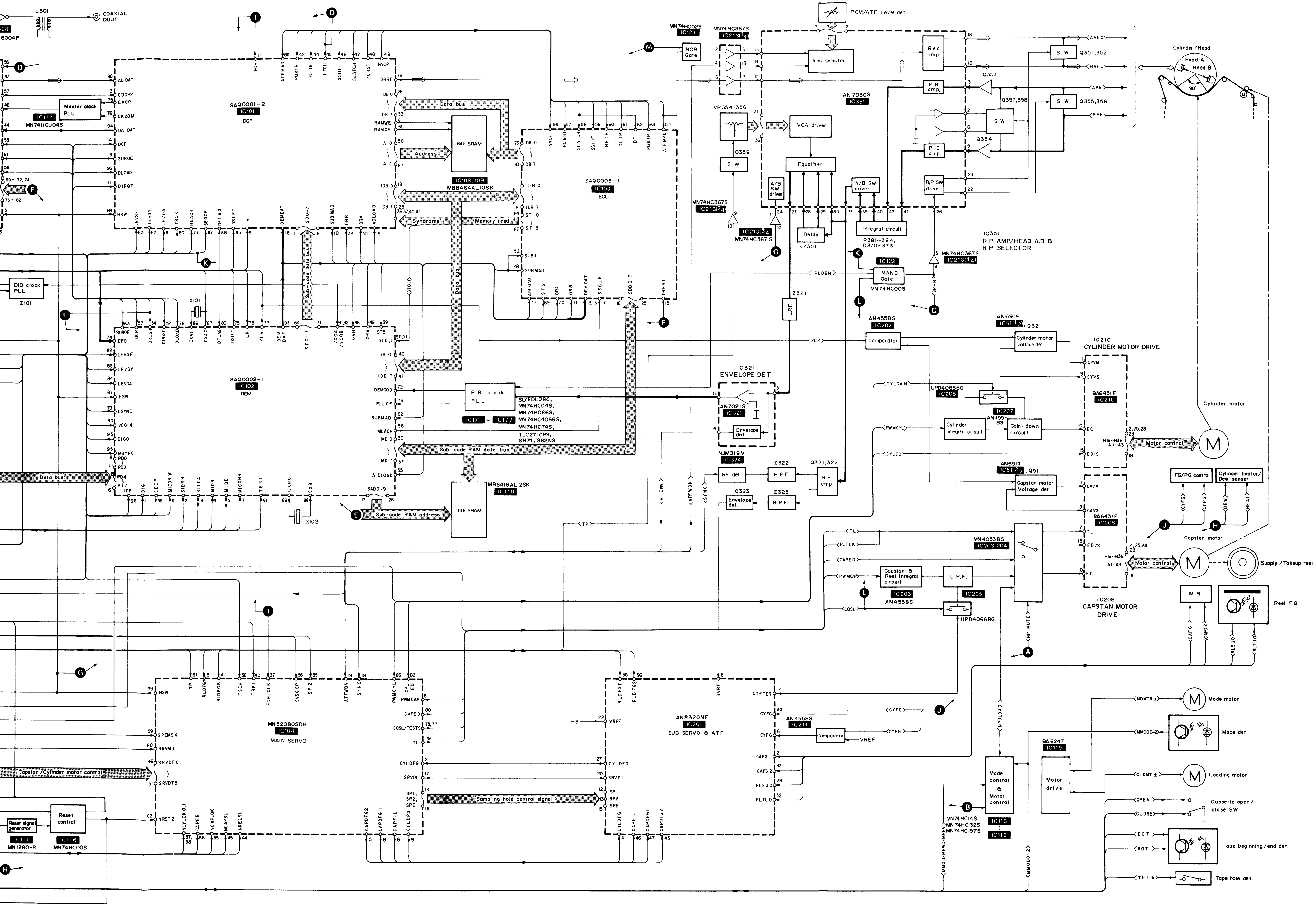
IC418, 420~423, 425
MN74HC74S, MN74HC125S, MN74HC175S, MN74HC08S, MN74HC04S, TC74HC123F
IC503~506
D/A CONVERTER
PCM56P-J
IC503
IC504
IC505
IC506
IC502
SERIAL/PARALLEL CONVERTER
MN53010PEH
IC501
DIGITAL FILTER
YM3404B
Comparator
IC511
IC512
NJM5532M
Class AA sampling hold
SVIUPD4053GI, M5238FPTA
IC507, 509
IC508, 510
SVHHAF0614
IC513
IC514
L.P.F.
Output level selector
S702
Class AA AMP
NJM5532DD, NJM4560D
IC703, 705, 707
IC704, 706, 708
RLY701
RLY702
RLY703
RLY501
RLY801
RLY701, 702, 801
Muting drive
ATT drive
Dempha drive
Z705
Z706
Z707
Z708
LINE OUT
HEAD PHONES
Class AA AMP
IC801~803
M5218P
AC IN
S1
F1
T1
Power transformer
D11
D12~15
D16, 17
D18
D24
M5F7805L
IC12
IC13 M5F78M05L
IC11 M5F78M05L
IC14 M5F78M12L
IC15 M5F7812L
Q11
Q12
Q13
Regulator
Muting control
+8.5V
-10V
+17V
-19V
To Audio circuit
+4.8V
+7.6V
To Signal Processing circuit
NP MUTE
+4.8V
+12V
+12V
To System control & Servo/RF circuit
+12V
+5.5V
+5V
-27V
AC5.3V
To FL circuit
Key matrix
Key return signal
Key scan signal
Grid signal
Wired remote control
Q603~608
LED drive (PLAY, REC, PAUSE, EDIT)
M50754-430FP
IC603
PANEL CONTROL
FL display
FL601
Q601
Reset det.
Control data drive
Q602
S701 Sampling frequency selector
COAXIAL DIN
COAXIAL DOUT
M74HC6004P
IC428
Z403
Filter
S401
DIN selector
MN74HCU04S, MN74HC04S
IC112, 423
L501
CD74HC4046A
IC111
DF PLL
MN53020SDF
IC105
IFGA
Master clock PLL
IC112
MN74HCU04S
SAQ0001-2
IC101
DSP
DIO clock PLL
Z101
X101
MN18982SDJ2
IC106
SBP
FS Selector S703
SAQ0002-1
IC102
DEM
Data bus
Muting condition control
Address and Data bus
Muting drive
IC113, 116
MN74HC14S, MN74HC00S
MN188322SDK3
IC107
SYSTEM CONTROL
Capstan/Cylinder motor control
Reset signal generator
IC121
MN1280-R
Reset control
IC116
MN74HC00S
Dew det./Heater drive
M5234FP
IC118, Q104
A
B
C
D
E
F
G
H
I
K
M

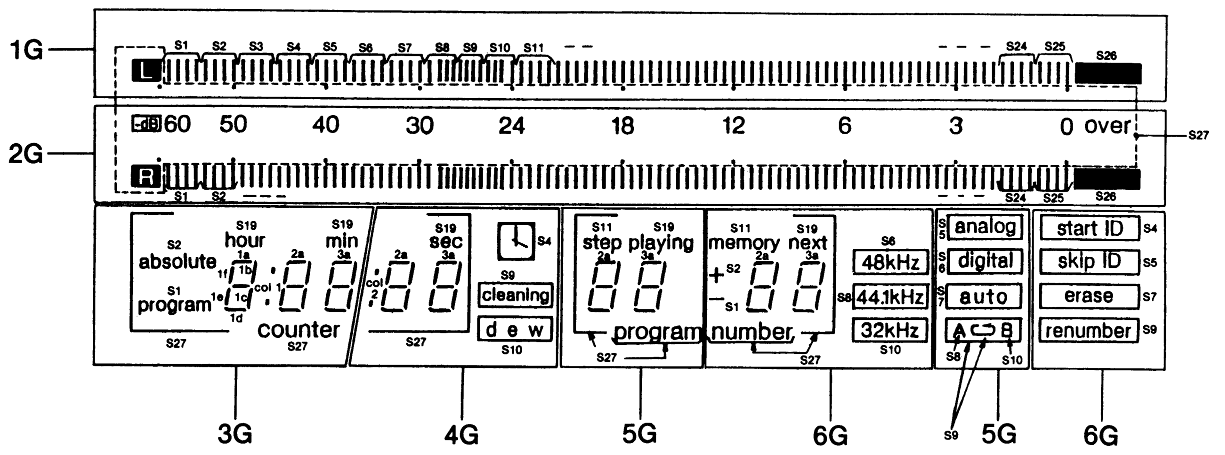

COAXIAL DOUT
L501
SAQ0001-2
IC101
DSP
Master clock PLL
IC112
MN74HCU04S
Data bus
Address
64k SRAM
IC108, 109
MB8464AL10SK
Syndrome
Memory read
SAQ0003-1
IC103
ECC
SAQ0002-1
IC102
DEM
DIO clock PLL
Z101
X101
X102
Sub-code data bus
P.B. clock PLL
IC171 ~ IC177
SLYEDL080, MN74HC04S, MN74HC86S, MN74HC4066S, MN74HC74S, TLC271CPS, SN74LS62NS
Sub-code RAM data bus
MB8416AL12SK
IC110
16k SRAM
Sub-code RAM address
MN74HC02S
IC123
NOR Gate
MN74HC367S
IC213(1/4)
PCM/ATF Level det.
Irec selector
Rec amp.
P.B. amp.
P.B. amp.
AN7030S
IC351
VR354~356
VCA driver
Equalizer
Q359
SW
A/B SW driver
A/B SW driver
R/P SW drive
Delay
Z351
Integral circuit
R381~384, C370~373
IC351
R.P. AMP/HEAD A.B & R.P. SELECTOR
Q351,352
Q353
Q357,358
Q355,356
Q354
Cylinder/Head
Head A
Head B
90°
IC122
NAND Gate
MN74HC00S
MN74HC367S
IC213(4/4)
IC213(2/4)
IC213(3/4)
Z321
LPF
AN4558S
IC202
Comparator
AN6914
IC51(1/2), Q52
Cylinder motor voltage det.
IC210
CYLINDER MOTOR DRIVE
BA6431F
IC210
Cylinder motor
Motor control
IC321
ENVELOPE DET.
AN7021S
IC321
Envelope det.
NJM319M
IC324
RF det.
Z322
H.P.F.
Q321,322
RF amp
Q323
Envelope det.
Z323
B.P.F.
UPD4066BG
IC205
IC207
AN4558S
Cylinder integral circuit
Gain-down Circuit
AN6914
IC51(2/2), Q51
Capstan motor Voltage det.
BA6431F
IC208
IC208
CAPSTAN MOTOR DRIVE
FG/PG control
Cylinder heater/Dew sensor
Capstan motor
Supply / Takeup reel
MN4053BS
IC203, 204
Capstan & Reel integral circuit
IC206
AN4558S
L.P.F.
IC205
UPD4066BG
MR
Reel FG
MN52080SDH
IC104
MAIN SERVO
Capstan/Cylinder motor control
Sampling hold control signal
AN8320NF
IC201
SUB SERVO & ATF
AN4558S
IC211
Comparator
VREF
Mode motor
Mode det.
BA6247
IC119
Mode control & Motor control
Motor drive
IC113 ~ IC115
MN74HC14S, MN74HC132S, MN74HC157S
Loading motor
Cassette open/close SW
Tape beginning/end det.
Tape hole det.
Reset signal generator
IC121
MN1280-R
Reset control
IC116
MN74HC00S

NOTES:

(→): Playback signal
(⇨): Recording signal

■ INTERNAL CONNECTION OF FL

- Grid connection diagram.


1G
2G
S1 S2 S3 S4 S5 S6 S7 S8 S9 S10 S11
S24 S25 S26
L
-dB 60 50 40 30 24 18 12 6 3 0 over
S27
R
S19 hour S19 min
S2 absolute
S1 program
counter
S19 sec
S4
S9 cleaning
d e w
S10
S11 S19 step playing
program
S11 S19 memory next
number
S6 48kHz
S8 44.1kHz
32kHz
S10
analog
digital
auto
A ⊂ B
start ID S4
skip ID S5
erase S7
renumber S9
3G
4G
5G
6G
S9 5G
6G

- Anode connection table.

	6 G	5 G	4 G	3 G	2 G	1 G
S1	—	-	-	program	▮▮▮▮	▮▮▮▮
S2	+	-	-	absolute	▮▮▮▮	▮▮▮▮
S3	-	-	-	-	▮▮▮▮	▮▮▮▮
S4	start ID	-	🕒	1a	▮▮▮▮	▮▮▮▮
S5	skip ID	analog	-	1b	▮▮▮▮	▮▮▮▮
S6	48kHz	digital	-	1f	▮▮▮▮	▮▮▮▮
S7	erase	auto	-	1g	▮▮▮▮	▮▮▮▮
S8	44.1kHz	A	-	1c	▮▮▮▮	▮▮▮▮
S9	renumber	↺	cleaning	1e	▮▮▮▮	▮▮▮▮
S10	32kHz	B	dew	1d	▮▮▮▮	▮▮▮▮
S11	memory	step	-	-	▮▮▮▮	▮▮▮▮
S12	2a	2a	2a	2a	▮▮▮▮	▮▮▮▮
S13	2b	2b	2b	2b	▮▮▮▮	▮▮▮▮
S14	2f	2f	2f	2f	▮▮▮▮	▮▮▮▮
S15	2g	2g	2g	2g	▮▮▮▮	▮▮▮▮
S16	2c	2c	2c	2c	▮▮▮▮	▮▮▮▮
S17	2e	2e	2e	2e	▮▮▮▮	▮▮▮▮
S18	2d	2d	2d	2d	▮▮▮▮	▮▮▮▮
S19	next	playing	sec , col,2	hour , min , col,1	▮▮▮▮	▮▮▮▮
S20	3a	3a	3a	3a	▮▮▮▮	▮▮▮▮
S21	3b	3b	3b	3b	▮▮▮▮	▮▮▮▮
S22	3f	3f	3f	3f	▮▮▮▮	▮▮▮▮
S23	3g	3g	3g	3g	▮▮▮▮	▮▮▮▮
S24	3c	3c	3c	3c	▮▮▮▮	▮▮▮▮
S25	3e	3e	3e	3e	▮▮▮▮	▮▮▮▮
S26	3d	3d	3d	3d	█	█
S27	number]	[program	]	[counter	-dB 60~0 OVER ·········· R	L ··········

■ SCHEMATIC DIAGRAM

(Parts list on page 103 ~ 109.)

(This schematic diagram may be modified at any time with development of new technology.)

Note 1):

- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.
  Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.

  * Indicated voltage values are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB).
  All voltage values shown in circuitry are DC voltage in " power on " mode.

  ※ Figure in < > stand for DC-voltage in record mode.
  Figure in ( ) stand for DC-voltage in playback mode.
  Figure in (< >) stand for DC-voltage in record/playback mode.

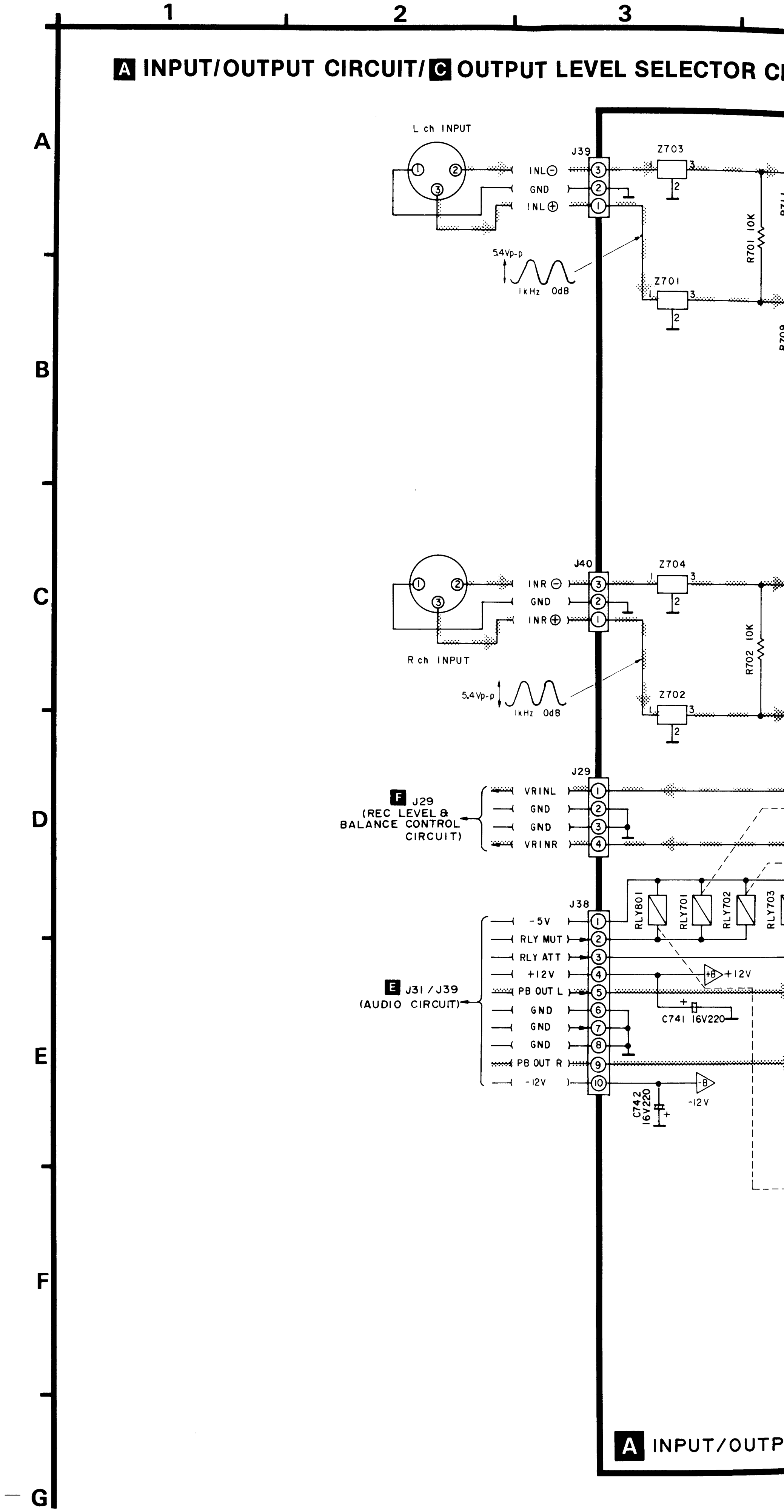
- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

- S702: Output level selector switch.
- ⇛ : The flow of the record signal.
- ⇛ : The flow of the playback signal.

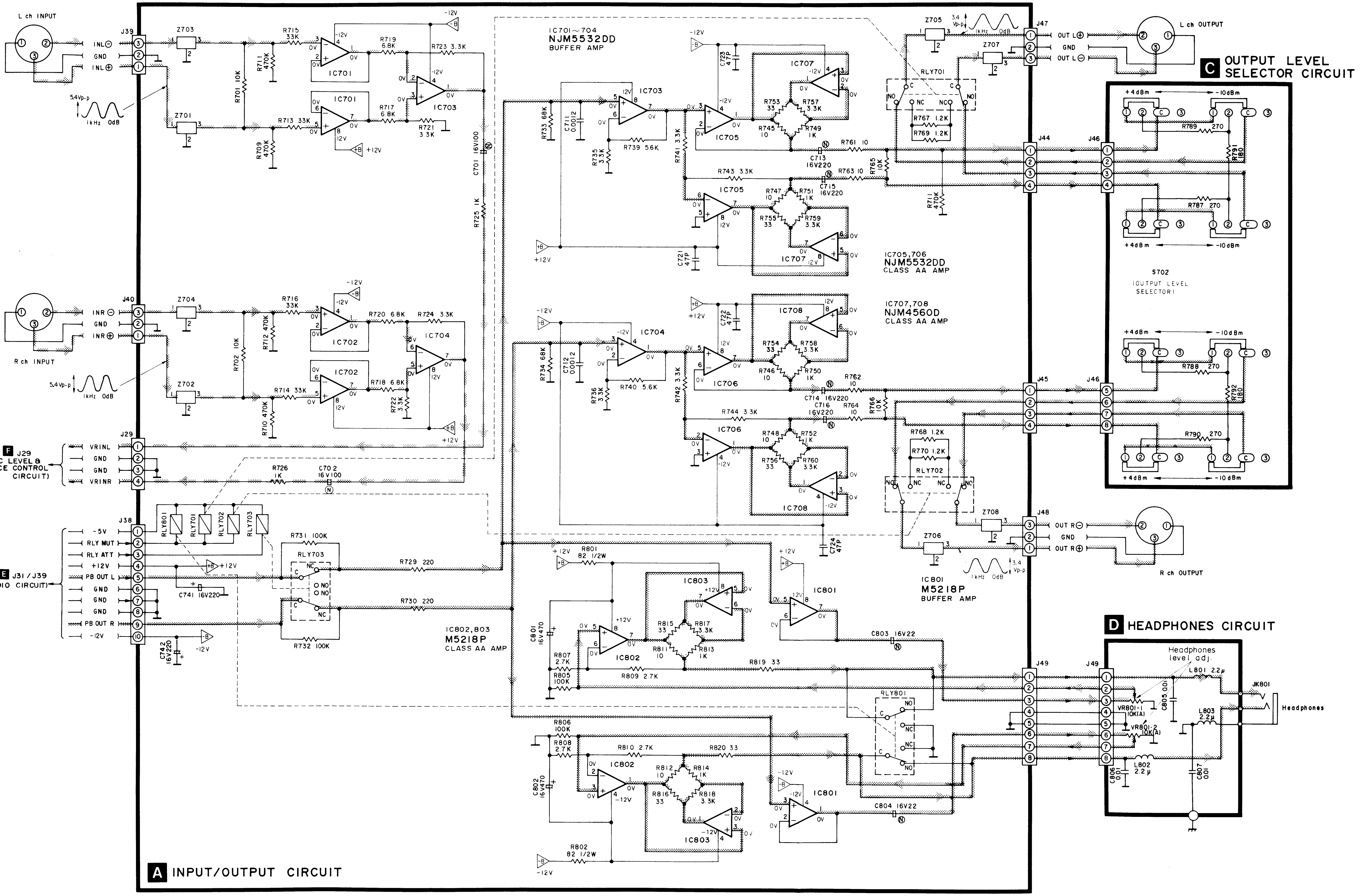
Caution!

IC and LSI are sensitive to static electricity.
Sencondary trouble can be prevented by taking care during repair.

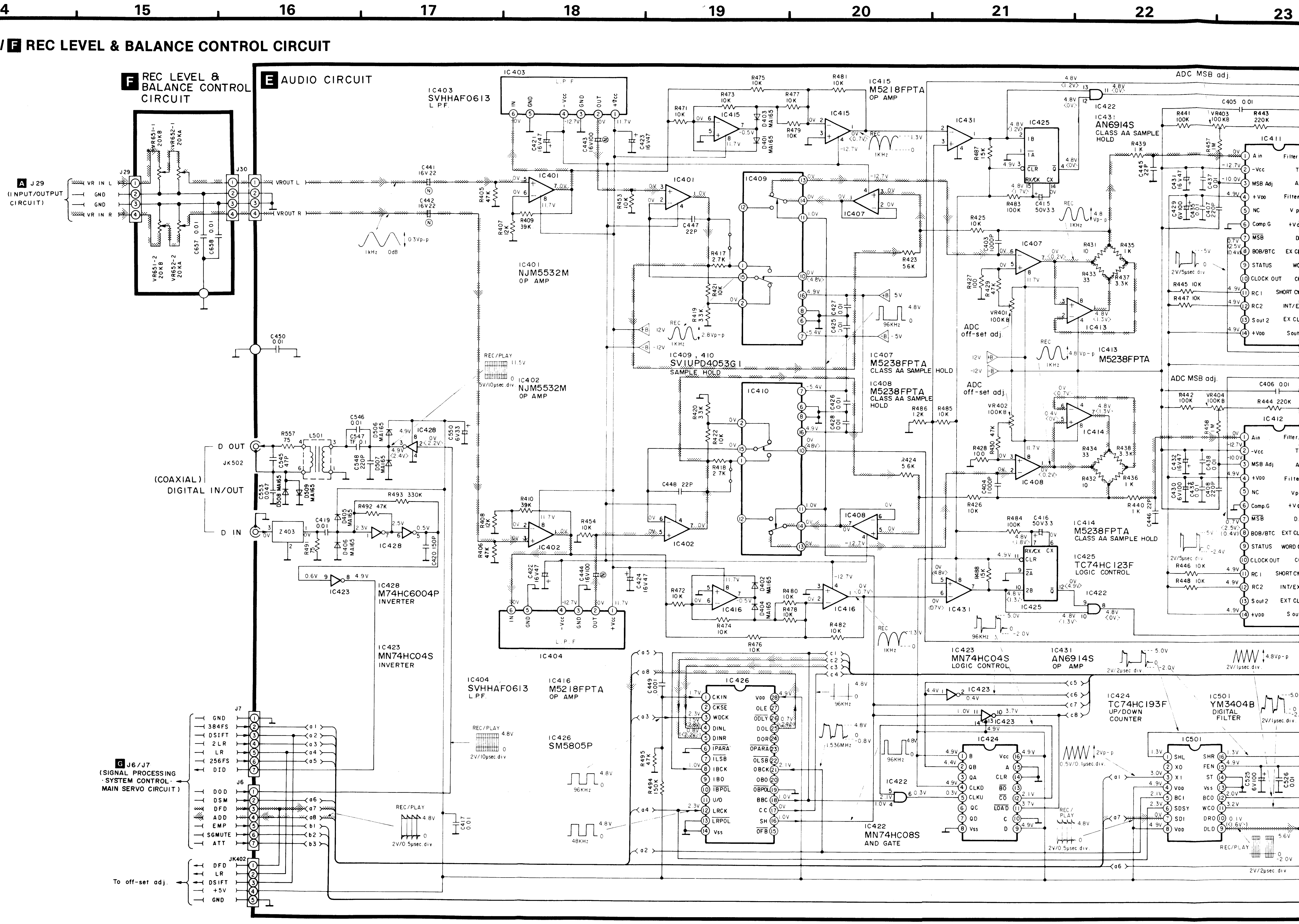
- Cover the parts boxes made of plastics with aluminum foll.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

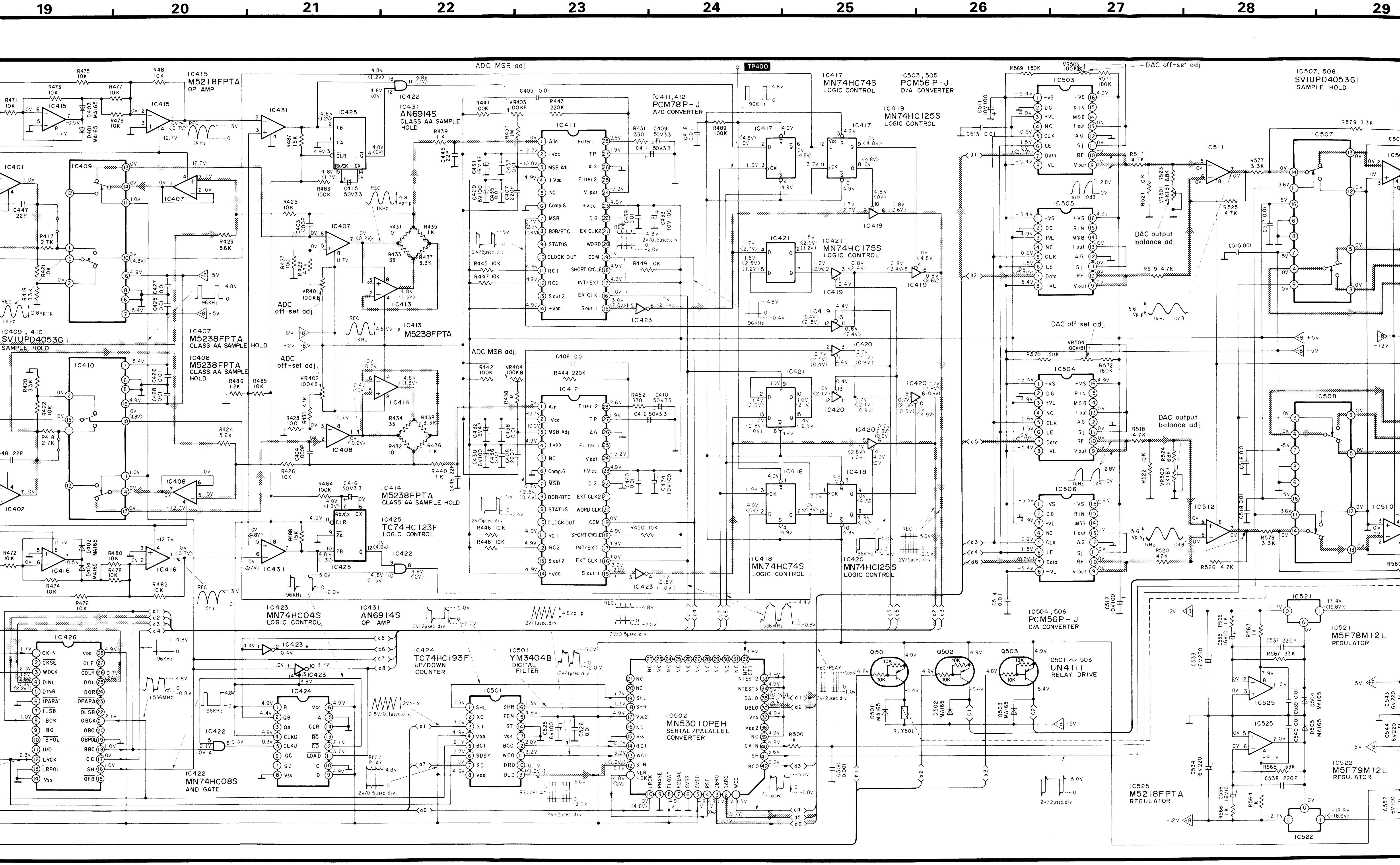

1
2
3
A
B
C
D
E
F
G
A INPUT/OUTPUT CIRCUIT/ C OUTPUT LEVEL SELECTOR CI
L ch INPUT
J39
INL⊖
GND
INL⊕
Z703
R701 10K
5.4Vp-p
1kHz 0dB
Z701
J40
INR⊖
GND
INR⊕
Z704
R ch INPUT
R702 10K
5.4Vp-p
1kHz 0dB
Z702
J29
F J29
(REC LEVEL & BALANCE CONTROL CIRCUIT)
VRINL
GND
GND
VRINR
J38
-5V
RLY MUT
RLY ATT
+12V
PB OUT L
GND
GND
GND
PB OUT R
-12V
E J31 / J39
(AUDIO CIRCUIT)
RLY801
RLY701
RLY702
RLY703
+B
+12V
C741 16V220
C742 16V220
-B
-12V
A INPUT/OUTP

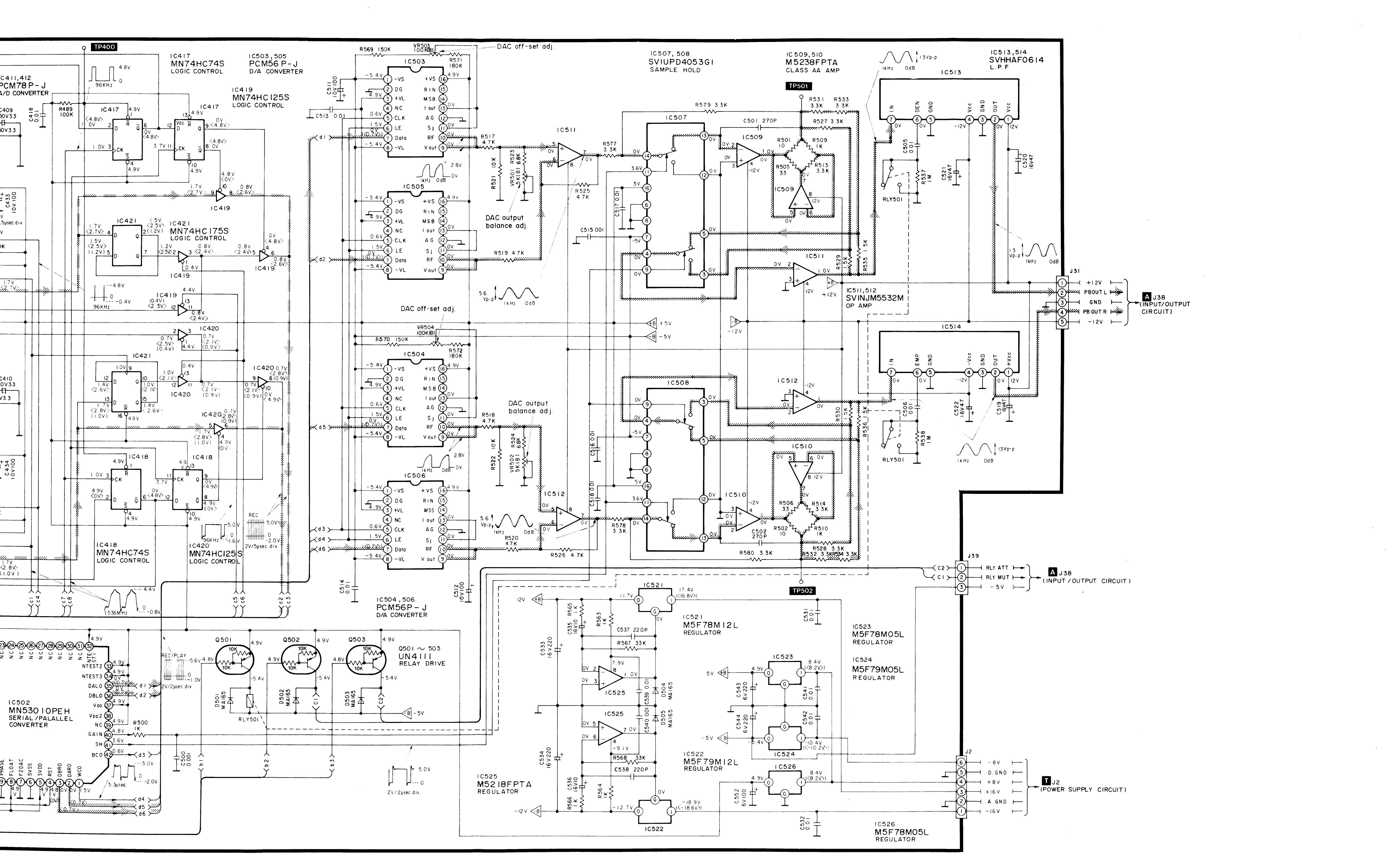
UIT/ C OUTPUT LEVEL SELECTOR CIRCUIT/ D HEADPHONES CIRCUIT


L ch INPUT
INL⊖
GND
INL⊕
J39
5.4Vp-p
1kHz 0dB
Z703
Z701
R715 33K
R711 470K
R701 10K
R713 33K
R709 470K
IC701
R719 6.8K
R717 6.8K
R723 3.3K
R721 3.3K
IC703
-12V
+12V
C701 16V100
R725 1K
IC701~704
NJM5532DD
BUFFER AMP
R733 68K
C711 0.0012
R735 3.3K
R739 5.6K
R741 3.3K
C723 47P
IC705
IC707
R753 33
R757 3.3K
R745 10
R749 1K
R743 3.3K
R747 10
R751 1K
R755 33
R759 3.3K
C721 47P
R761 10
C713 16V220
R763 10
C715 16V220
R765 10K
R711 470K
IC705,706
NJM5532DD
CLASS AA AMP
IC707,708
NJM4560D
CLASS AA AMP
Z705
3.4 Vp-p
1kHz 0dB
Z707
RLY701
NO
NC
R767 1.2K
R769 1.2K
J47
OUT L⊕
GND
OUT L⊖
L ch OUTPUT
J44
J46
C OUTPUT LEVEL SELECTOR CIRCUIT
+4dBm
-10dBm
R789 270
R791 180
R787 270
S702
(OUTPUT LEVEL SELECTOR)
R788 270
R792 180
R790 270
R ch INPUT
INR⊖
GND
INR⊕
J40
Z704
Z702
R716 33K
R712 470K
R702 10K
R714 33K
R710 470K
IC702
R720 6.8K
R724 3.3K
R718 6.8K
R722 3.3K
IC704
R734 68K
C712 0.0012
R736 3.3K
R740 5.6K
R742 3.3K
C722 47P
IC706
IC708
R754 33
R758 3.3K
R746 10
R750 1K
R762 10
C714 16V220
C716 16V220
R764 10
R766 10K
R744 3.3K
R748 10
R752 1K
R756 33
R760 3.3K
C724 47P
R768 1.2K
R770 1.2K
RLY702
Z708
Z706
J45
J48
OUT R⊖
GND
OUT R⊕
R ch OUTPUT
J29
VRINL
GND
GND
VRINR
F J29
C LEVEL & CE CONTROL CIRCUIT)
R726 1K
C702 16V100
J38
-5V
RLY MUT
RLY ATT
+12V
PB OUT L
GND
GND
GND
PB OUT R
-12V
E J31/J39 IO CIRCUIT)
RLY801
RLY701
RLY702
RLY703
C741 16V220
C742 16V220
R731 100K
RLY703
R732 100K
R729 220
R730 220
IC802,803
M5218P
CLASS AA AMP
R801 82 1/2W
R802 82 1/2W
C801 16V470
C802 16V470
IC803
IC802
R807 2.7K
R805 100K
R809 2.7K
R815 33
R817 3.3K
R811 10
R813 1K
R819 33
R806 100K
R808 2.7K
R810 2.7K
R820 33
R812 10
R814 1K
R816 33
R818 3.3K
IC801
M5218P
BUFFER AMP
C803 16V22
C804 16V22
RLY801
J49
D HEADPHONES CIRCUIT
Headphones level adj.
L801 2.2µ
L802 2.2µ
L803 2.2µ
C805 0.01
C806 0.01
C807 0.01
VR801-1 10K(A)
VR801-2 10K(A)
JK801
Headphones
A INPUT/OUTPUT CIRCUIT

• E AUDIO CIRCUIT / F REC LEVEL & BALANCE CONTROL CIRCUIT


13
14
15
16
17
18
19
20
21
22
23
F REC LEVEL & BALANCE CONTROL CIRCUIT
E AUDIO CIRCUIT
A J29 (INPUT/OUTPUT CIRCUIT)
VR IN L
GND
GND
VR IN R
J29
J30
VR651-1 20KB
VR652-1 20KA
VR651-2 20KB
VR652-2 20KA
C657 0.01
C658 0.01
VROUT L
VROUT R
C441 16V22
C442 16V22
1kHz 0dB
0.3Vp-p
C450 0.01
IC403
IC403 SVHHAF0613 L.P.F.
L.P.F
IC401
IC401 NJM5532M OP AMP
R405 47K
R407 12K
R409 39K
IC409
IC409, 410 SV1UPD4053G1 SAMPLE HOLD
IC410
IC407
IC407 M5238FPTA CLASS AA SAMPLE HOLD
IC408
IC408 M5238FPTA CLASS AA SAMPLE HOLD
IC415
IC415 M5218FPTA OP AMP
IC431
IC425
IC422
IC431 AN6914S CLASS AA SAMPLE HOLD
IC413
IC413 M5238FPTA
IC414
IC414 M5238FPTA CLASS AA SAMPLE HOLD
IC425 TC74HC123F LOGIC CONTROL
ADC MSB adj.
ADC off-set adj.
VR401 100KB
VR402 100KB
VR403 100KB
VR404 100KB
IC411
IC412
C405 0.01
C406 0.01
REC/PLAY
IC402
IC402 NJM5532M OP AMP
D OUT
JK502
(COAXIAL) DIGITAL IN/OUT
D IN
Z403
L501
IC428
IC428 M74HC6004P INVERTER
IC423
IC423 MN74HC04S INVERTER
IC404
IC404 SVHHAF0613 L.P.F.
IC416
IC416 M5218FPTA OP AMP
IC426
IC426 SM5805P
IC424
IC424 TC74HC193F UP/DOWN COUNTER
IC423 MN74HC04S LOGIC CONTROL
IC431 AN6914S OP AMP
IC422 MN74HC08S AND GATE
IC501
IC501 YM3404B DIGITAL FILTER
J7
J6
JK402
G J6/J7 (SIGNAL PROCESSING · SYSTEM CONTROL · MAIN SERVO CIRCUIT)
GND
384FS
DSIFT
2LR
LR
256FS
DID
DOD
DSM
DFD
ADD
EMP
SGMUTE
ATT
DFD
LR
DSIFT
+5V
GND
To off-set adj.


19
20
21
22
23
24
25
26
27
28
29
ADC MSB adj.
TP400
DAC off-set adj.
IC415
M5218FPTA
OP AMP
IC422
IC431
AN6914S
CLASS AA SAMPLE HOLD
IC425
IC411
IC411,412
PCM78P-J
A/D CONVERTER
IC417
MN74HC74S
LOGIC CONTROL
IC503,505
PCM56P-J
D/A CONVERTER
IC419
MN74HC125S
LOGIC CONTROL
IC507, 508
SVIUPD4053GI
SAMPLE HOLD
IC503
IC505
IC511
IC507
IC401
IC409
IC407
ADC off-set adj.
IC413
M5238FPTA
IC421
MN74HC175S
LOGIC CONTROL
DAC output balance adj.
IC409, 410
SVIUPD4053GI
SAMPLE HOLD
IC407
M5238FPTA
CLASS AA SAMPLE HOLD
IC408
M5238FPTA
CLASS AA SAMPLE HOLD
IC410
IC414
IC412
IC420
IC504
IC508
IC408
IC402
IC414
M5238FPTA
CLASS AA SAMPLE HOLD
IC425
TC74HC123F
LOGIC CONTROL
IC418
IC506
IC512
IC510
IC416
IC418
MN74HC74S
LOGIC CONTROL
IC420
MN74HC125S
LOGIC CONTROL
IC423
MN74HC04S
LOGIC CONTROL
IC431
AN6914S
OP AMP
IC504,506
PCM56P-J
D/A CONVERTER
IC521
IC426
IC423
IC424
TC74HC193F
UP/DOWN COUNTER
IC501
YM3404B
DIGITAL FILTER
IC502
MN53010PEH
SERIAL/PALALLEL CONVERTER
Q501
Q502
Q503
Q501 ~ 503
UN4111
RELAY DRIVE
RLY501
IC521
M5F78M12L
REGULATOR
IC525
IC522
M5F79M12L
REGULATOR
IC424
IC422
MN74HC08S
AND GATE
IC525
M5218FPTA
REGULATOR
IC522


24
25
26
27
28
29
30
31
32
33
TP400
IC411,412
PCM78P-J
A/D CONVERTER
IC417
MN74HC74S
LOGIC CONTROL
IC503,505
PCM56P-J
D/A CONVERTER
IC419
MN74HC125S
LOGIC CONTROL
IC421
MN74HC175S
LOGIC CONTROL
IC420
IC418
MN74HC74S
LOGIC CONTROL
IC420
MN74HC125S
LOGIC CONTROL
IC503
IC505
IC504
IC506
IC504,506
PCM56P-J
D/A CONVERTER
DAC off-set adj.
DAC output balance adj.
VR503 100K(B)
VR504 100K(B)
VR501 5K(B)
VR502 5K(B)
IC511
IC512
IC507,508
SVIUPD4053GI
SAMPLE HOLD
IC507
IC508
IC509,510
M5238FPTA
CLASS AA AMP
IC509
IC510
TP501
TP502
IC511,512
SVINJM5532M
OP AMP
IC513,514
SVHHAF0614
L.P.F
IC513
IC514
RLY501
J31
+12V
PBOUT L
GND
PB OUT R
-12V
A J38 (INPUT/OUTPUT CIRCUIT)
J39
RLY ATT
RLY MUT
-5V
A J38 (INPUT/OUTPUT CIRCUIT)
Q501
Q502
Q503
Q501 ~ 503
UN4111
RELAY DRIVE
D501 MA165
D502 MA165
D503 MA165
RLY501
REC/PLAY
IC502
MN53010PEH
SERIAL/PALALLEL
CONVERTER
IC521
M5F78M12L
REGULATOR
IC522
M5F79M12L
REGULATOR
IC525
M5218FPTA
REGULATOR
IC523
M5F78M05L
REGULATOR
IC524
M5F79M05L
REGULATOR
IC526
M5F78M05L
REGULATOR
D504 MA165
D505 MA165
J2
-8V
D.GND
+8V
+16V
A.GND
-16V
T J2 (POWER SUPPLY CIRCUIT)
1kHz 0dB
13Vp-p
5.6 Vp-p
2V/5μsec.div
2V/2μsec.div
96KHz
1.536MHz

• G SIGNAL PROCESSING·SYSTEM CONTROL · MAIN SERVO CIRCUIT/ H P.B. CLOCK CIRCUIT

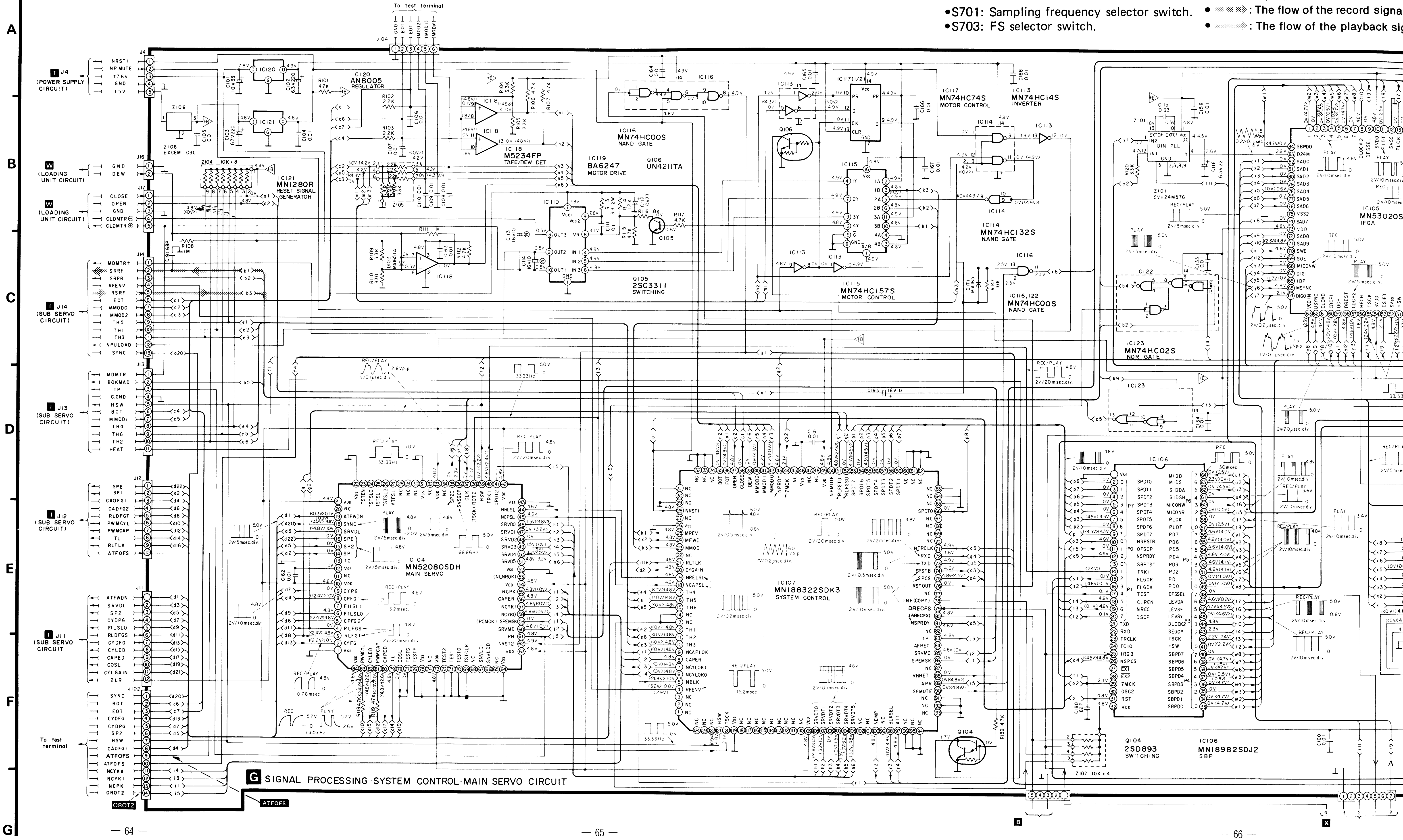
Note 2):

•S701: Sampling frequency selector switch.

•S703: FS selector switch.

• : The flow of the record signa

• : The flow of the playback si

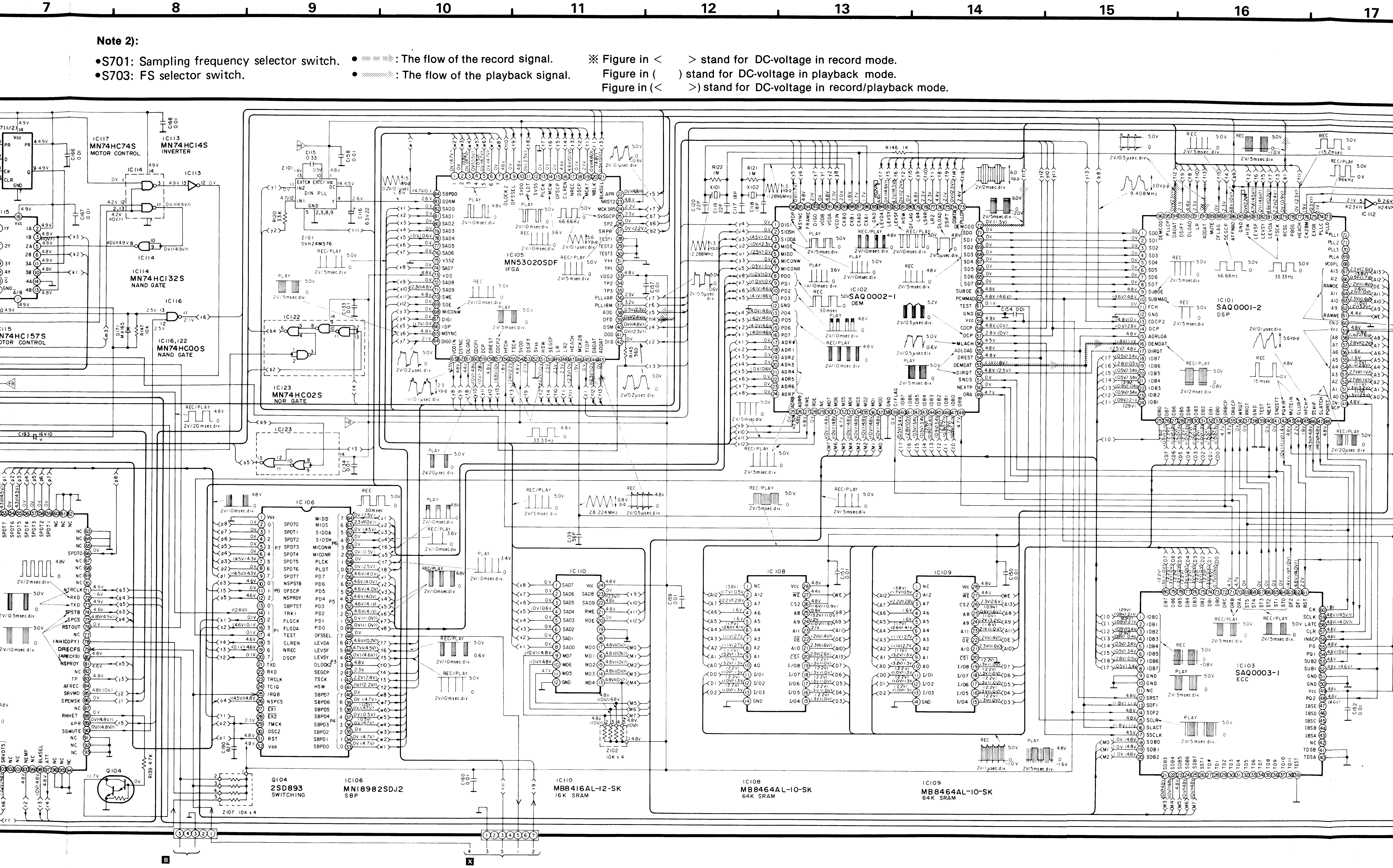

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
To test terminal
J104
GND
BOT
EOT
MOD2
MOD1
MOD#
J4
NRST1
NP MUTE
+7.6V
GND
+5V
T J4 (POWER SUPPLY CIRCUIT)
IC120 AN8005 REGULATOR
IC121
Z106 EXCEMT103C
Z104 10K×8
IC121 MN1280R RESET SIGNAL GENERATOR
J16
GND
DEW
W (LOADING UNIT CIRCUIT)
J17
CLOSE
OPEN
GND
CLDMTR⊖
CLDMTR⊕
W (LOADING UNIT CIRCUIT)
IC118 M5234FP TAPE/DEW DET
IC116 MN74HC00S NAND GATE
IC119 BA6247 MOTOR DRIVE
Q106 UN4211TA
IC117 MN74HC74S MOTOR CONTROL
IC113 MN74HC14S INVERTER
IC114 MN74HC132S NAND GATE
IC115 MN74HC157S MOTOR CONTROL
IC116,122 MN74HC00S NAND GATE
Q105 2SC3311 SWITCHING
Z101 SVH24M576
IC122
IC123 MN74HC02S NOR GATE
IC105 MN53020S IFGA
J14
MDMTR+
SRRF
SRPR
RFENV
RSRF
EOT
MMOD0
MMOD2
TH5
TH1
TH3
NPULOAD
SYNC
I J14 (SUB SERVO CIRCUIT)
J13
MDMTR
BOKMAD
TP
G.GND
HSW
BOT
MMOD1
TH4
TH6
TH2
HEAT
I J13 (SUB SERVO CIRCUIT)
J12
SPE
SP1
CADFG1
CADFG2
RLDFGT
PWMCYL
PWMCAP
TL
RLTLK
ATFOFS
I J12 (SUB SERVO CIRCUIT)
J11
ATFWDN
SRVDL
SP2
CYDPG
FILSLO
RLDFGS
CYDFG
CYLED
CAPED
COSL
CYLGAIN
2LR
I J11 (SUB SERVO CIRCUIT)
J102
SYNC
BOT
EOT
CYDFG
CYDPG
SP2
HSW
CADFG1
ATFOFS
ATFOFS
NCYK#
NCYK1
NCPK
OROT2
To test terminal
IC104 MN52080SDH MAIN SERVO
IC107 MN188322SDK3 SYSTEM CONTROL
IC106 MN18982SDJ2 SBP
Q104 2SD893 SWITCHING
Z107 10K×4
G SIGNAL PROCESSING·SYSTEM CONTROL·MAIN SERVO CIRCUIT
OROT2
ATFOFS
B
X

Note 2):

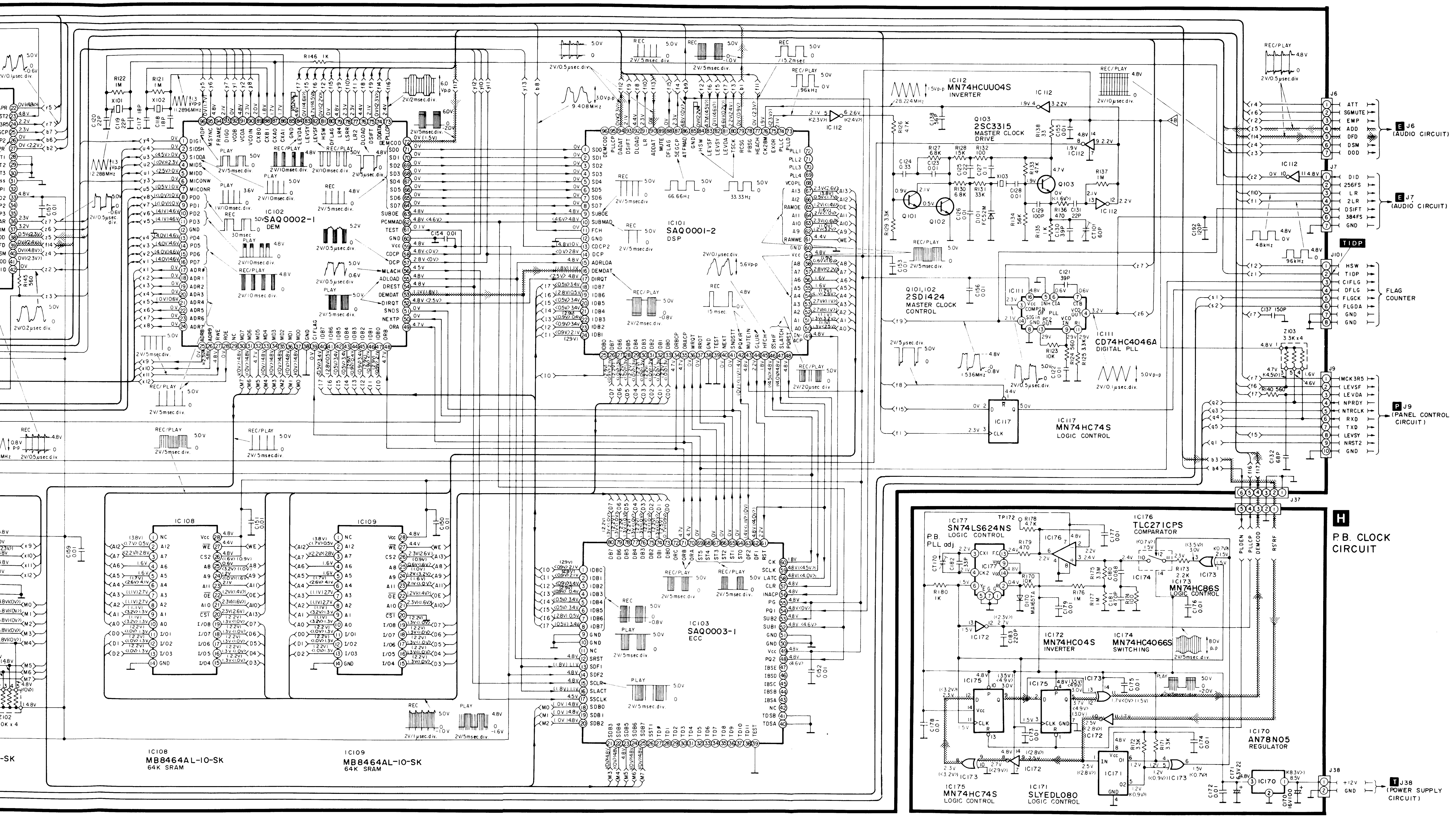
- •S701: Sampling frequency selector switch.
- •S703: FS selector switch.

- ● ▨ : The flow of the record signal.
- ● ▨ : The flow of the playback signal.

※ Figure in < > stand for DC-voltage in record mode.
Figure in ( ) stand for DC-voltage in playback mode.
Figure in (< >) stand for DC-voltage in record/playback mode.

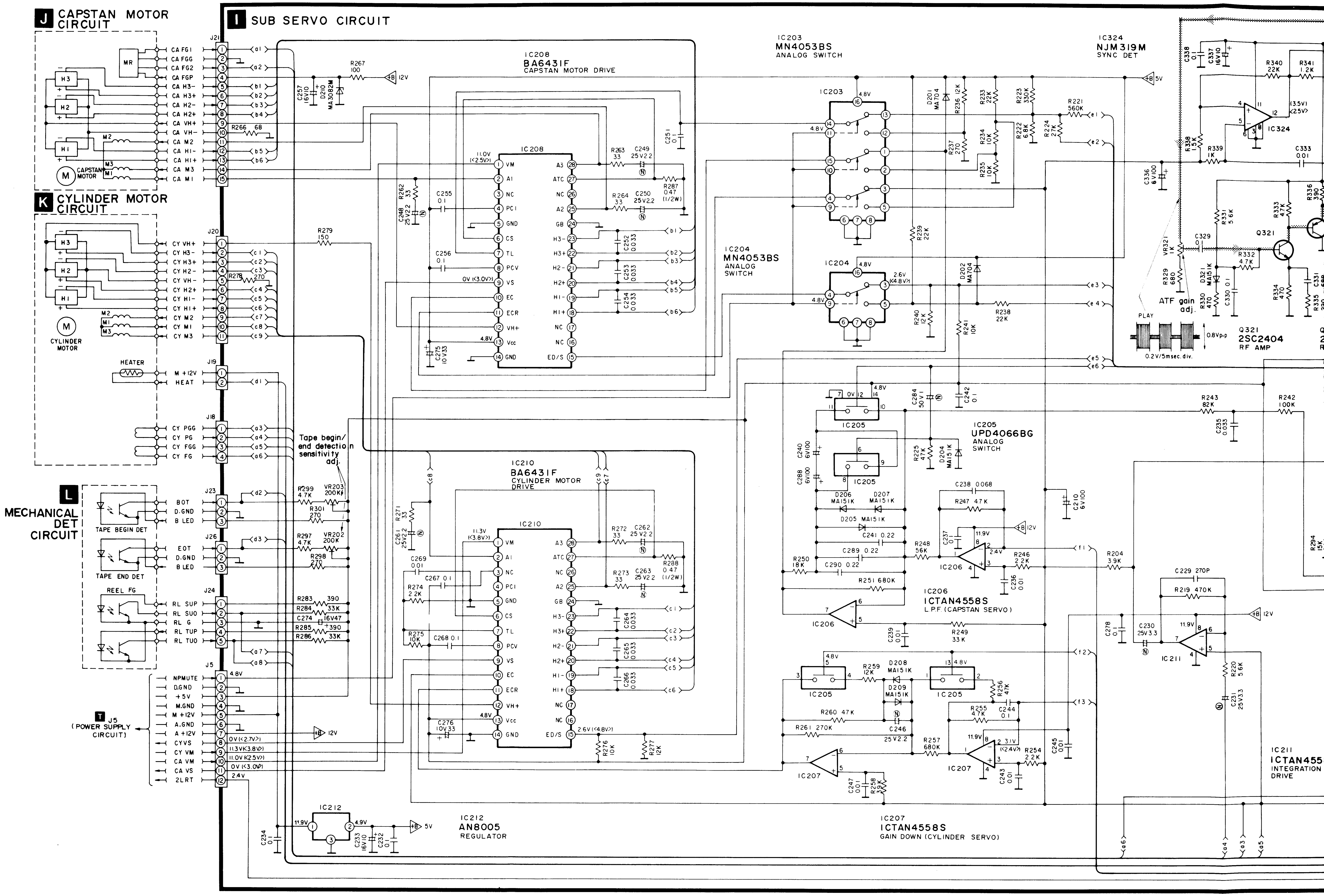

7
8
9
10
11
12
13
14
15
16
17
IC117 MN74HC74S MOTOR CONTROL
IC113 MN74HC14S INVERTER
IC114 MN74HC132S NAND GATE
IC116,122 MN74HC00S NAND GATE
IC115 MN74HC157S MOTOR CONTROL
IC123 MN74HC02S NOR GATE
Z101 SVH24M576
X101
X102
IC105 MN53020SDF IFGA
IC102 SAQ0002-1 DEM
IC101 SAQ0001-2 DSP
IC112
IC106
IC110
IC108
IC109
IC103 SAQ0003-1 ECC
Q104 2SD893 SWITCHING
IC106 MN18982SDJ2 SBP
IC110 MB8416AL-12-SK 16K SRAM
IC108 MB8464AL-10-SK 64K SRAM
IC109 MB8464AL-10-SK 64K SRAM
Z107 10K x 4
Z102 10K x 4
R146 1K
R122 1M
R121 1M
R120 33K
R139 4.7K
D171 MA165
R147 10K
C115 0.33
C116 63V22
C166 0.01
C168 0.01
C167 0.01
C158 0.01
C133 0.01
C134 0.01
C157 0.01
C120 22P
C119 22P
C117 18P
C118 18P
C154 .001
C193 16V10
C139 56P
C159 0.01
C160 0.01
C190 82P
C152 0.01
C101 0.01
C100 0.01
12.288MHz
1.2896MHz
9.408MHz
28.224MHz
66.66Hz
33.33Hz
96kHz
REC
PLAY
REC/PLAY
B
X

igure in < > stand for DC-voltage in record mode.
igure in ( ) stand for DC-voltage in playback mode.
igure in (< >) stand for DC-voltage in record/playback mode.


IC102
SAQ0002-1
DEM
IC101
SAQ0001-2
DSP
IC103
SAQ0003-1
ECC
IC108
MB8464AL-10-SK
64K SRAM
IC109
MB8464AL-10-SK
64K SRAM
IC112
MN74HCU04S
INVERTER
Q103
2SC3315
MASTER CLOCK
DRIVE
Q101,102
2SD1424
MASTER CLOCK
CONTROL
IC111
CD74HC4046A
DIGITAL PLL
IC117
MN74HC74S
LOGIC CONTROL
X101
X102
X103
R146 1K
9.408MHz
28.224MHz
11.2896MHz
12.288MHz
1.536MHz
J6
ATT
SGMUTE
EMP
ADD
DFD
DSM
DOD
E J6
(AUDIO CIRCUIT)
J7
DID
256FS
LR
2LR
DSIFT
384FS
GND
E J7
(AUDIO CIRCUIT)
TIDP
J101
HSW
TIDP
CIFLG
DFLG
FLGCK
FLGDA
GND
GND
FLAG
COUNTER
J9
MCK3R5
LEVSF
LEVDA
NPRDY
NTRCLK
RXD
TXD
LEVSY
NRST2
GND
P J9
(PANEL CONTROL
CIRCUIT)
J37
H
P.B. CLOCK
CIRCUIT
IC177
SN74LS624NS
LOGIC CONTROL
P.B.
PLL adj
IC176
TLC271CPS
COMPARATOR
IC173
MN74HC86S
LOGIC CONTROL
IC172
MN74HC04S
INVERTER
IC174
MN74HC4066S
SWITCHING
IC175
MN74HC74S
LOGIC CONTROL
IC171
SLYEDL080
LOGIC CONTROL
IC170
AN78N05
REGULATOR
J38
+12V
GND
I J38
(POWER SUPPLY
CIRCUIT)
PLDEN
PLLCP
DEMCOD
RS'RF
REC
PLAY
REC/PLAY
2V/5msec.div.
5.0V
4.8V

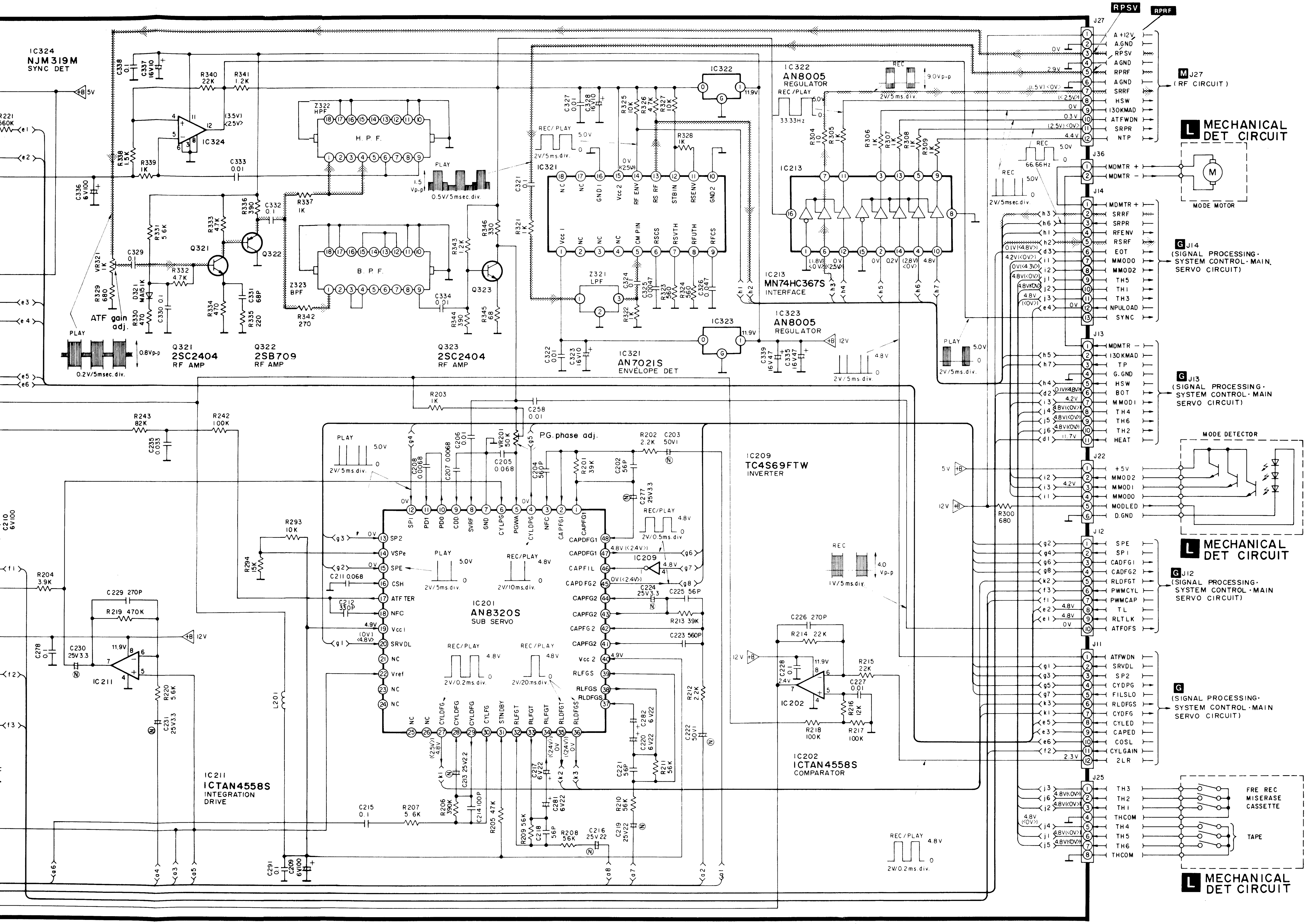
22 23 24 25 26 27 28 29 30 31 32

• I SUB SERVO CIRCUIT/J CAPSTAN MOTOR CIRCUIT/K CYLINDER MOTOR CIRCUIT/L MECHANICAL DET. CIRCUIT / B SAMPLING FREQUENCY SELECTOR CIRCUIT / X FS SELECTOR CIRCUIT

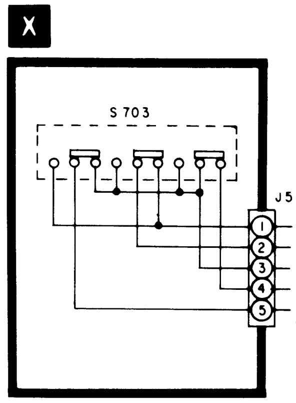


J CAPSTAN MOTOR CIRCUIT
K CYLINDER MOTOR CIRCUIT
L MECHANICAL DET CIRCUIT
I SUB SERVO CIRCUIT
MR
H3
H2
H1
M2
M3
M1
CAPSTAN MOTOR
CYLINDER MOTOR
HEATER
TAPE BEGIN DET
TAPE END DET
REEL FG
J21
CA FG1
CA FGG
CA FG2
CA FGP
CA H3-
CA H3+
CA H2-
CA H2+
CA VH+
CA VH-
CA M2
CA H1-
CA H1+
CA M3
CA M1
J20
CY VH+
CY H3-
CY H3+
CY H2-
CY VH-
CY H2+
CY H1-
CY H1+
CY M2
CY M1
CY M3
J19
M +12V
HEAT
J18
CY PGG
CY PG
CY FGG
CY FG
J23
BOT
D.GND
B LED
J26
EOT
D.GND
B LED
J24
RL SUP
RL SUO
RL G
RL TUP
RL TUO
J5
NPMUTE
D.GND
+5V
M.GND
M +12V
A.GND
A +12V
CYVS
CY VM
CA VM
CA VS
2LRT
T J5 (POWER SUPPLY CIRCUIT)
0V (2.7V)
11.3V (3.8V)
11.0V (2.5V)
0V (3.0V)
2.4V
4.8V
12V
5V
IC208
BA6431F
CAPSTAN MOTOR DRIVE
VM
A1
NC
PC1
GND
CS
TL
PCV
VS
EC
ECR
VH+
Vcc
A3
ATC
A2
GB
H3-
H3+
H2-
H2+
H1-
H1+
ED/S
11.0V (2.5V)
0V (3.0V)
R267 100
C257 16V10
D210 MA3082M
R266 68
R263 33
C249 25V2.2
R264 33
C250 25V2.2
R287 0.47 (1/2W)
C251 0.1
R262 33
C248 25V2.2
C255 0.1
C256 0.1
C252 0.033
C253 0.033
C254 0.033
C275 10V33
R279 150
R278 270
Tape begin/end detection sensitivity adj.
R299 4.7K
VR203 200K
R301 270
R297 4.7K
VR202 200K
R298 270
R283 390
R284 33K
C274 16V47
R285 390
R286 33K
IC210
BA6431F
CYLINDER MOTOR DRIVE
11.3V (3.8V)
R271 33
C261 25V2.2
C269 0.01
C267 0.1
R274 2.2K
R275 10K
C268 0.1
C276 10V33
R272 33
C262 25V2.2
R273 33
C263 25V2.2
R288 0.47 (1/2W)
C264 0.033
C265 0.033
C266 0.033
2.6V (4.8V)
R276 10K
R277 12K
IC212
AN8005
REGULATOR
11.9V
4.9V
C234 0.1
C233 16V10
C232 0.1
IC203
MN4053BS
ANALOG SWITCH
IC204
MN4053BS
ANALOG SWITCH
2.6V (4.8V)
D201 MA704
R236 12K
R233 22K
R223 330K
R237 270
R234 10K
R235 10K
R222 6.8K
R224 27K
R221 560K
R239 22K
D202 MA704
R240 12K
R241 10K
R238 22K
IC324
NJM319M
SYNC DET
C338 0.1
C337 16V10
R340 22K
R341 1.2K
(3.5V)
(2.5V)
R338 1.5K
R339 1K
C333 0.01
C336 6V100
R331 5.6K
R333 4.7K
R336 390
C329 0.1
VR321 1K
R332 4.7K
Q321
R329 680
D321 MA151K
R330 470
C330 0.1
R334 470
ATF gain adj.
PLAY
0.8Vp-p
0.2V/5msec.div.
Q321
2SC2404
RF AMP
IC205
UPD4066BG
ANALOG SWITCH
C284 50V1
C242 0.1
C240 6V100
C288 6V100
R225 47K
D204 MA151K
D206 MA151K
D207 MA151K
D205 MA151K
C238 0.068
R247 47K
C241 0.22
C289 0.22
C290 0.22
R248 56K
C237 0.1
R246 2.2K
C236 0.01
R250 18K
R251 680K
IC206
ICTAN4558S
L.P.F. (CAPSTAN SERVO)
C239 0.01
R249 33K
C210 6V100
R204 3.9K
R243 82K
C235 0.0047
R242 100K
C229 270P
R219 470K
C278 0.1
C230 25V3.3
IC211
R220 5.6K
C231 25V3.3
R294 15K
R259 12K
D208 MA151K
D209 MA151K
R256 47K
R260 47K
R255 4.7K
C244 0.1
R261 270K
C246 25V2.2
R257 680K
3.1V (2.4V)
R254 2.2K
C245 0.01
C243 0.01
C247 0.01
R258 3.9K
IC207
ICTAN4558S
GAIN DOWN (CYLINDER SERVO)
IC211
ICTAN455
INTEGRATION DRIVE

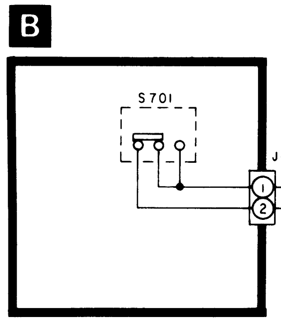
/X FS SELECTOR CIRCUIT


IC324 NJM319M SYNC DET
IC322 AN8005 REGULATOR
IC321 AN7021S ENVELOPE DET
IC323 AN8005 REGULATOR
IC213 MN74HC367S INTERFACE
IC201 AN8320S SUB SERVO
IC209 TC4S69FTW INVERTER
IC202 ICTAN4558S COMPARATOR
IC211 ICTAN4558S INTEGRATION DRIVE
Q321 2SC2404 RF AMP
Q322 2SB709 RF AMP
Q323 2SC2404 RF AMP
Z322 HPF
Z323 BPF
Z321 LPF
ATF gain adj.
PG. phase adj.
RPSV
RPRF
J27
M J27 (RF CIRCUIT)
J36
L MECHANICAL DET CIRCUIT
MODE MOTOR
J14
G J14 (SIGNAL PROCESSING · SYSTEM CONTROL · MAIN SERVO CIRCUIT)
J13
G J13 (SIGNAL PROCESSING · SYSTEM CONTROL · MAIN SERVO CIRCUIT)
J22
MODE DETECTOR
L MECHANICAL DET CIRCUIT
J12
G J12 (SIGNAL PROCESSING · SYSTEM CONTROL · MAIN SERVO CIRCUIT)
J11
G (SIGNAL PROCESSING · SYSTEM CONTROL · MAIN SERVO CIRCUIT)
J25
FRE REC
MISERASE
CASSETTE
TAPE
L MECHANICAL DET CIRCUIT

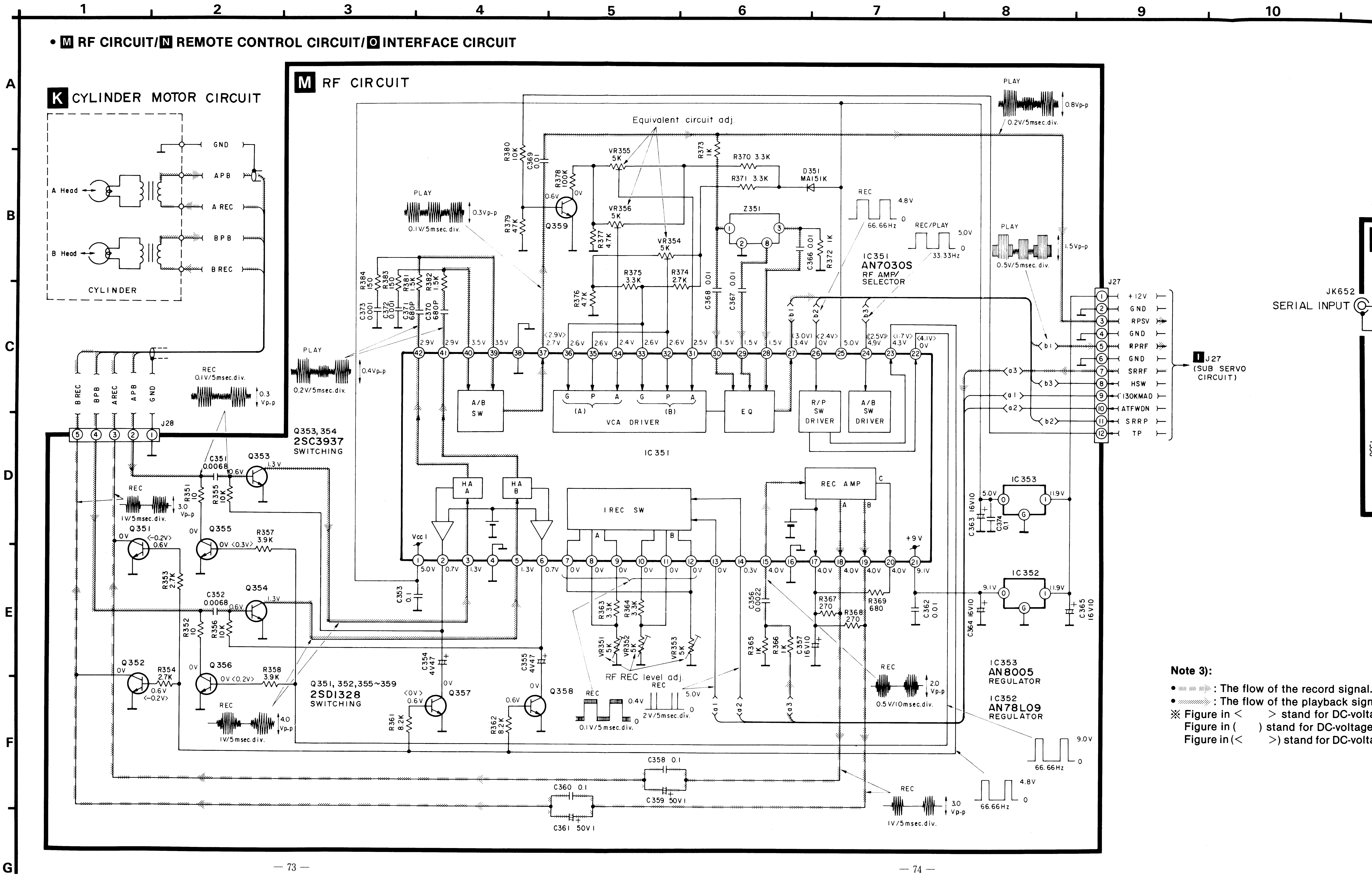
X


S703
J51
G (SIGNAL PROCESSING · SISTEM CONTROL · MAIN SERVO CIRCUIT)

B


S701
J43
G (SIGNAL PROCESSING · SISTEM CONTROL · MAIN SERVO CIRCUIT)

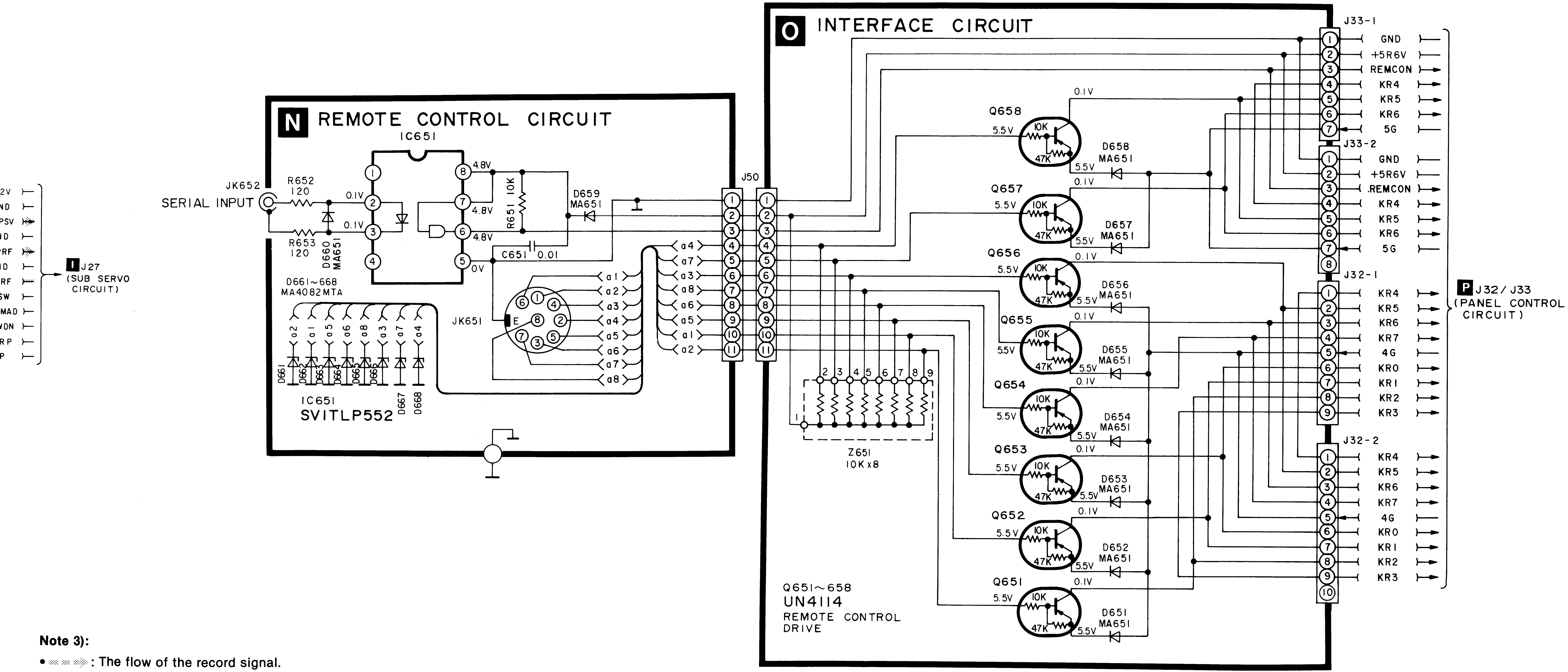
• M RF CIRCUIT/N REMOTE CONTROL CIRCUIT/O INTERFACE CIRCUIT


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
K CYLINDER MOTOR CIRCUIT
A Head
B Head
CYLINDER
GND
APB
A REC
BPB
B REC
M RF CIRCUIT
Equivalent circuit adj.
PLAY
0.3Vp-p
0.1V/5msec.div.
0.4Vp-p
0.2V/5msec.div.
0.8Vp-p
0.2V/5msec.div.
1.5Vp-p
0.5V/5msec.div.
REC
4.8V
66.66Hz
REC/PLAY
5.0V
33.33Hz
IC351
AN7030S
RF AMP/
SELECTOR
R380 10K
C369 0.01
R378 100K
R379 47K
Q359
VR355 5K
VR356 5K
VR354 5K
R377 4.7K
R376 4.7K
R375 3.3K
R374 2.7K
R373 1K
R370 3.3K
R371 3.3K
D351 MA151K
Z351
C366 0.01
R372 1K
C368 0.01
C367 0.01
R384 150
R383 150
R381 1.5K
R382 1.5K
C373 0.001
C372 0.001
C371 680P
C370 680P
A/B SW
VCA DRIVER
EQ
R/P SW DRIVER
A/B SW DRIVER
IC351
HA A
HA B
I REC SW
REC AMP
Vcc1
+9V
J27
+12V
GND
RPSV
RPRF
SRRF
HSW
130KMAD
ATFWDN
SRRP
TP
I J27 (SUB SERVO CIRCUIT)
JK652
SERIAL INPUT
IC353
IC352
C363 16V10
C374 0.1
C364 16V10
C365 16V10
C362 0.01
R369 680
R367 270
R368 270
C356 0.0022
R365 1K
R366 1K
C357 16V10
R363 3.3K
R364 3.3K
VR351 5K
VR352 5K
VR353 5K
RF REC level adj.
C353 0.1
C354 4V47
C355 4V47
Q357
Q358
R361 8.2K
R362 8.2K
J28
B REC
BPB
AREC
APB
GND
REC
0.1V/5msec.div.
0.3 Vp-p
Q353, 354
2SC3937
SWITCHING
C351 0.0068
Q353
R351 10
R355 10K
3.0 Vp-p
1V/5msec.div.
Q351
Q355
R357 3.9K
R353 2.7K
C352 0.0068
Q354
R352 10
R356 10K
Q352
R354 2.7K
Q356
R358 3.9K
4.0 Vp-p
Q351, 352, 355~359
2SD1328
SWITCHING
0.4V
0.1V/5msec.div.
2V/5msec.div.
C358 0.1
C359 50V1
C360 0.1
C361 50V1
3.0 Vp-p
1V/5msec.div.
2.0 Vp-p
0.5V/10msec.div.
9.0V
66.66Hz
IC353
AN8005
REGULATOR
IC352
AN78L09
REGULATOR

Note 3):

- ⟫ : The flow of the record signal.
- ⟫ : The flow of the playback sign

※ Figure in < > stand for DC-volta
Figure in ( ) stand for DC-voltage
Figure in (< >) stand for DC-volta

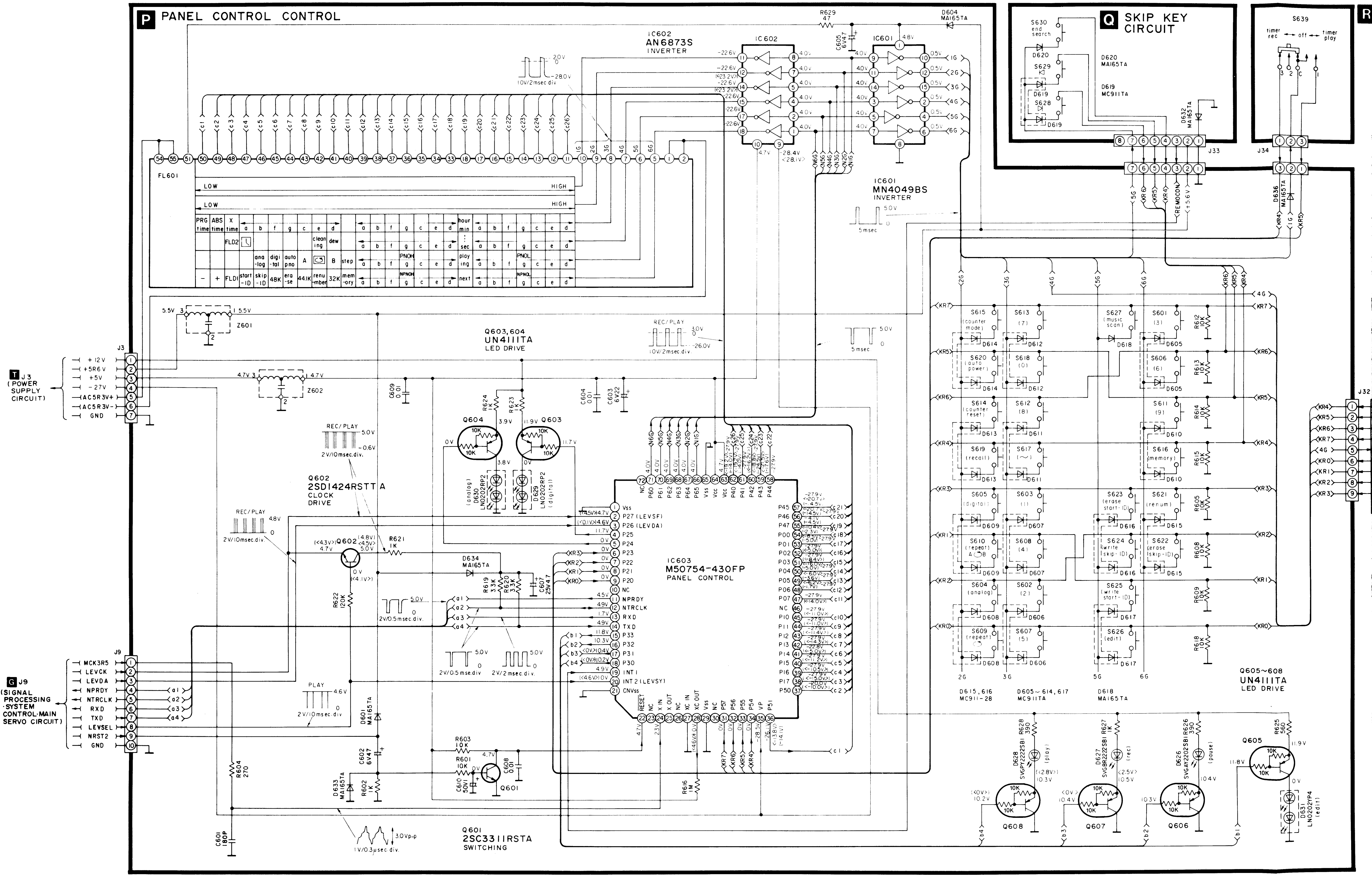

N REMOTE CONTROL CIRCUIT
IC651
JK652
SERIAL INPUT
R652 120
R653 120
D660 MA651
0.1V
4.8V
0V
R651 10K
D659 MA651
C651 0.01
JK651
E
D661~668 MA4082MTA
D661
D662
D663
D664
D665
D666
D667
D668
a1
a2
a3
a4
a5
a6
a7
a8
IC651
SVITLP552
J50
O INTERFACE CIRCUIT
Q651
Q652
Q653
Q654
Q655
Q656
Q657
Q658
10K
47K
5.5V
0.1V
D651 MA651
D652 MA651
D653 MA651
D654 MA651
D655 MA651
D656 MA651
D657 MA651
D658 MA651
Z651 10Kx8
Q651~658
UN4114
REMOTE CONTROL DRIVE
J33-1
GND
+5R6V
REMCON
KR4
KR5
KR6
5G
J33-2
GND
+5R6V
REMCON
KR4
KR5
KR6
5G
J32-1
KR4
KR5
KR6
KR7
4G
KR0
KR1
KR2
KR3
J32-2
KR4
KR5
KR6
KR7
4G
KR0
KR1
KR2
KR3
P J32/J33
(PANEL CONTROL CIRCUIT)
2V
ND
PSV
D
RF
D
RF
W
MAD
DN
RP
P
I J27
(SUB SERVO CIRCUIT)

Note 3):

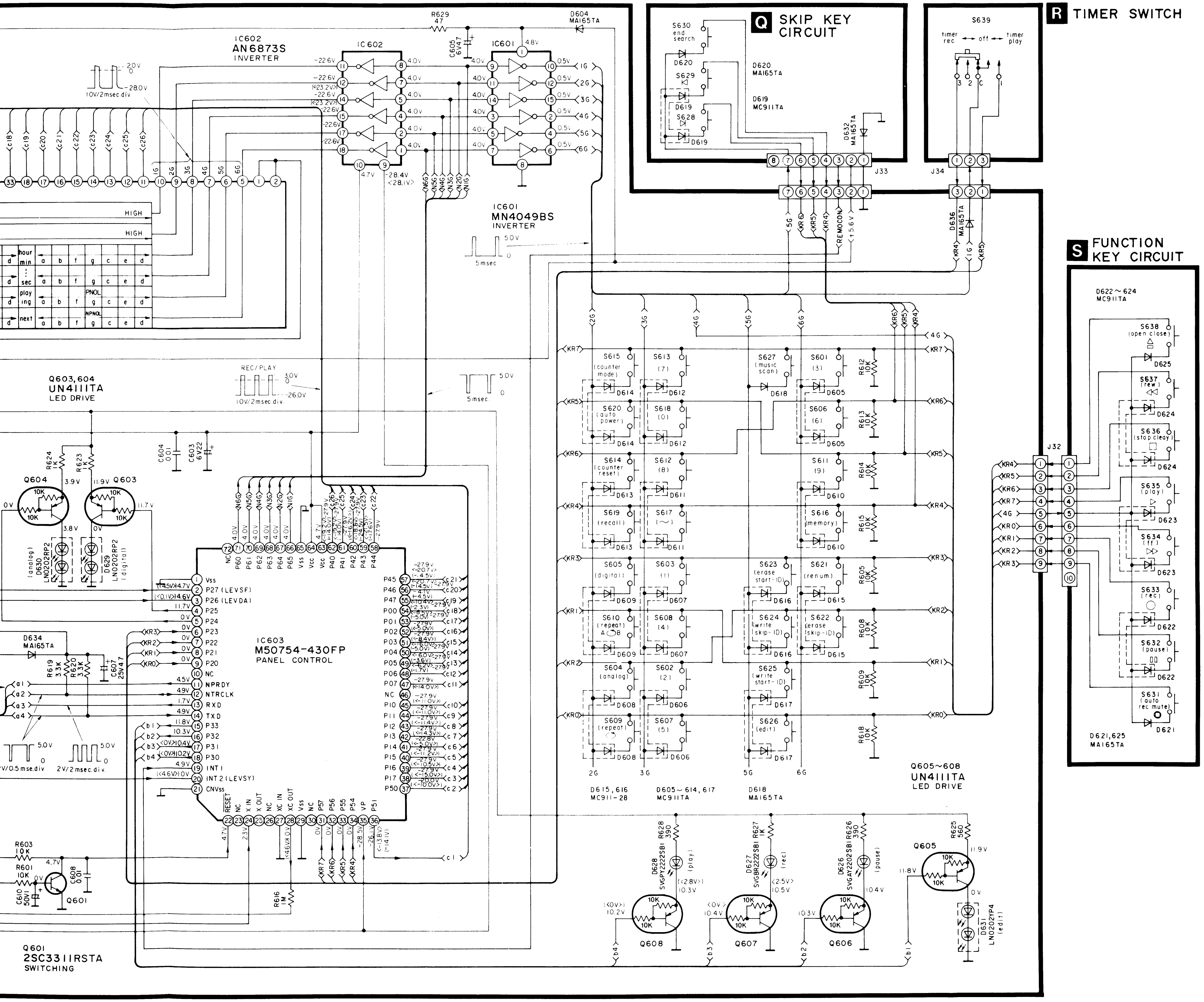
- ➡ : The flow of the record signal.
- ➡ : The flow of the playback signal.

※ Figure in < > stand for DC-voltage in record mode.
Figure in ( ) stand for DC-voltage in playback mode.
Figure in (< >) stand for DC-voltage in record/playback mode.

• P PANEL CONTROL CIRCUIT/Q SKIP KEY CIRCUIT/R TIMER SWITCH CIRCUIT/S FUNCTION KEY CIRCUIT


P PANEL CONTROL CONTROL
Q SKIP KEY CIRCUIT
IC602 AN6873S INVERTER
IC601 MN4049BS INVERTER
IC603 M50754-430FP PANEL CONTROL
FL601
Z601
Z602
Q603,604 UN4111TA LED DRIVE
Q602 2SD1424RSTT A CLOCK DRIVE
Q601 2SC3311RSTA SWITCHING
Q605~608 UN4111TA LED DRIVE
R629 47
D604 MA165TA
D634 MA165TA
D601 MA165TA
D633 MA165TA
D630 LN0202RP2 (analog)
D629 LN0202RP2 (digital)
D628 SVGPY2222SB1 (play)
D627 SVGR2222SB1 (rec)
D626 SVGAY2202SB1 (pause)
D631 LN0202YP4 (edit)
D620 MA165TA
D619 MC911TA
D632 MA165TA
D636 MA165TA
D615, 616 MC911-28
D605~614, 617 MC911TA
D618 MA165TA
S630 end search
S629
S628
S639 timer rec — off — timer play
J3 (POWER SUPPLY CIRCUIT)
+12V
+5R6V
+5V
-27V
AC5R3V+
AC5R3V-
GND
J9 (SIGNAL PROCESSING · SYSTEM CONTROL·MAIN SERVO CIRCUIT)
MCK3R5
LEVCK
LEVDA
NPRDY
NTRCLK
RXD
TXD
LEVSEL
NRST2
GND
J32
J33
J34
S615 (counter mode)
S613 (7)
S627 (music scan)
S601 (3)
S620 (auto power)
S618 (0)
S606 (6)
S614 (counter reset)
S612 (8)
S611 (9)
S619 (recall)
S617 (~)
S616 (memory)
S605 (digital)
S603 (1)
S623 (erase start-ID)
S621 (renum)
S610 (repeat) A-B
S608 (4)
S624 (write skip-ID)
S622 (erase skip-ID)
S604 (analog)
S602 (2)
S625 (write start-ID)
S609 (repeat)
S607 (5)
S626 (edit)
REC/PLAY
PLAY
2V/10msec.div.
2V/0.5msec.div.
2V/2msec.div.
10V/2msec.div.
1V/0.3μsec.div.
3.0Vp-p
5msec
LOW
HIGH

RCUIT/S FUNCTION KEY CIRCUIT


IC602 AN6873S INVERTER
IC601 MN4049BS INVERTER
IC603 M50754-430FP PANEL CONTROL
Q603,604 UN4111TA LED DRIVE
Q605~608 UN4111TA LED DRIVE
Q601 2SC3311RSTA SWITCHING
Q SKIP KEY CIRCUIT
R TIMER SWITCH
S FUNCTION KEY CIRCUIT
S630 end search
S629
S628
D620 MA165TA
D619 MC911TA
D632 MA165TA
S639 timer rec — off — timer play
J32
J33
J34
D636 MA165TA
D622~624 MC911TA
D621,625 MA165TA
S638 (open close)
S637 (rew)
S636 (stop clear)
S635 (play)
S634 (ff)
S633 (rec)
S632 (pause)
S631 (auto rec mute)
S615 (counter mode)
S613 (7)
S627 (music scan)
S601 (3)
S620 (auto power)
S618 (0)
S606 (6)
S614 (counter reset)
S612 (8)
S611 (9)
S619 (recall)
S617 (~)
S616 (memory)
S605 (digital)
S603 (1)
S623 (erase start-ID)
S621 (renum)
S610 (repeat) A↻B
S608 (4)
S624 (write skip-ID)
S622 (erase skip-ID)
S604 (analog)
S602 (2)
S625 (write start-ID)
S609 (repeat)
S607 (5)
S626 (edit)
D615,616 MC911-28
D605~614,617 MC911TA
D618 MA165TA
D628 SVGPV2222SB1 (play)
D627 SVGBR2222SB1 (rec)
D626 SVGAY2202SB1 (pause)
D631 LN0202YP4 (edit)
D630 LN0202RP2 (analog)
D629 LN0202RP2 (digital)
D634 MA165TA
D604 MA165TA
Q608
Q607
Q606
Q605
REC/PLAY
10V/2msec.div
5msec
HIGH
hour min
sec
play ing
next
PNOL
NPNOL

Note 4):

•S601~603, 606~608, 611~613, 618	: program switch. S603: 1, S602: 2, S601: 3, S608: 4, S607: 5, S606: 6, S613: 7, S612: 8, S611: 9, S618: 0
•S604, 605	: input selector switch. S604: analog, S605: digital
•S609	: ↻ repeat switch.
•S610	: A ↻ B repeat switch.
•S614	: reset switch.
•S615	: counter mode switch.
•S616	: memory switch.
•S617	: serial reserve switch.
•S619	: recall switch.
•S620	: auto switch.
•S621	: renumber switch.
•S622	: skip ID. erase switch.
•S623	: start ID. erase switch.
•S624	: skip ID. write switch.
•S625	: start ID. write switch.
•S626	: edit switch.
•S627	: music scan switch.
•S628, 629	: skip switch. S628: forward. S629: backward.
•S630	: end search switch.
•S631	: auto rec mute switch.
•S632	: pause switch.
•S633	: rec switch.
•S634	: ff/cue switch.
•S635	: play switch.
•S636	: stop switch.
•S637	: rew/rev switch.
•S638	: open/close switch.
•S639	: timer switch.

- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.

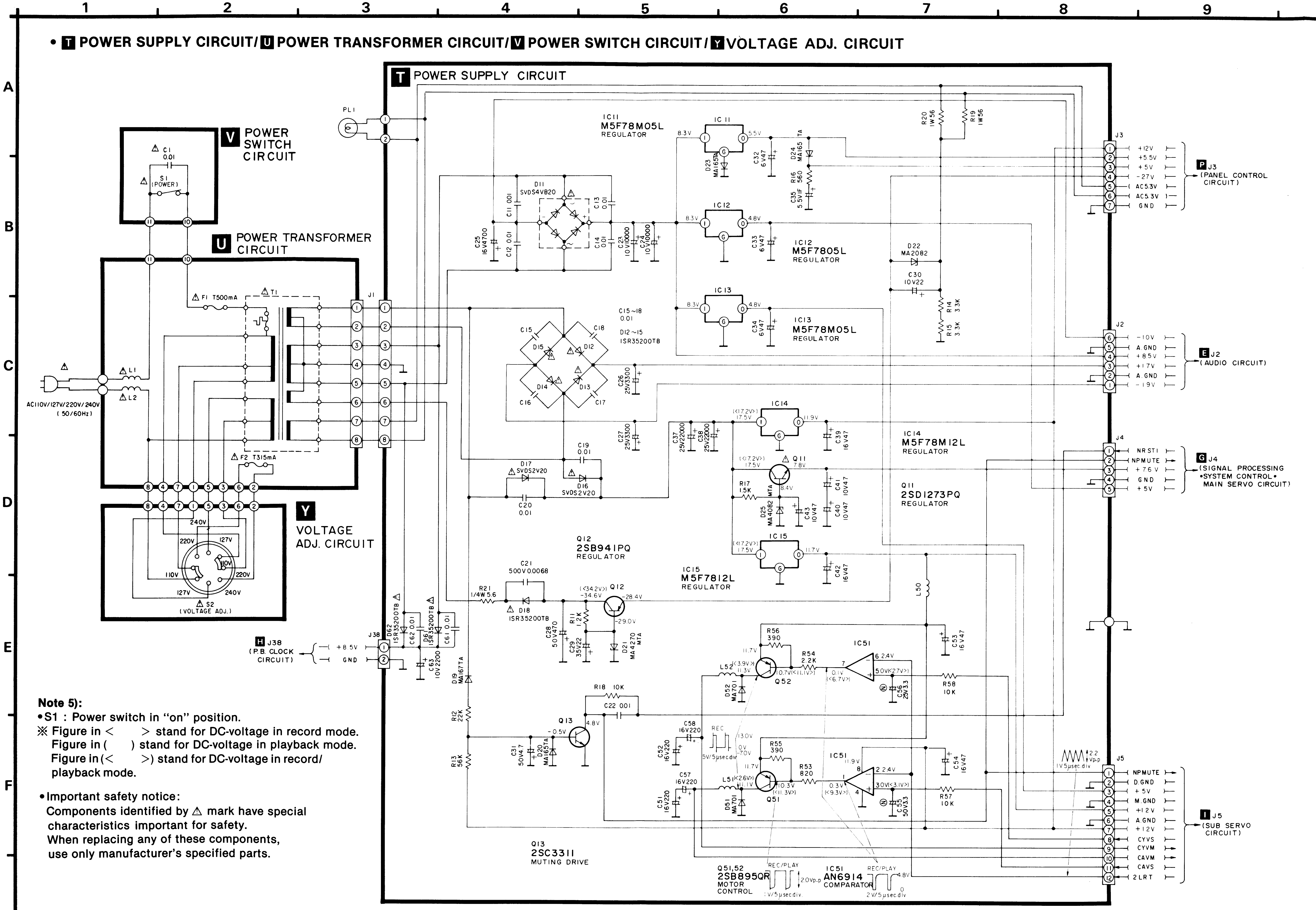
  Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.

  * Indicated votage values are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB).

  All voltage values shown in circuitry are DC voltage in "power on" mode.

※ Figure in < > stand for DC-voltage in record mode.
Figure in ( ) stand for DC-voltage in playback mode.
Figure in (< >) stand for DC-voltage in record/playback mode.

• T POWER SUPPLY CIRCUIT/ U POWER TRANSFORMER CIRCUIT/ V POWER SWITCH CIRCUIT/ Y VOLTAGE ADJ. CIRCUIT

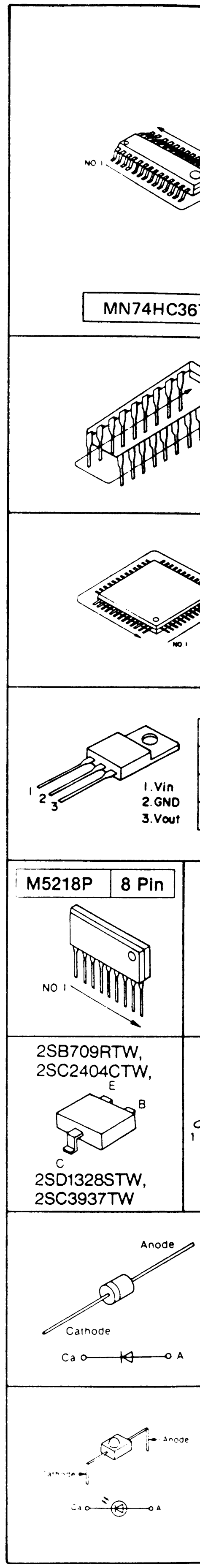

1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
T POWER SUPPLY CIRCUIT
V POWER SWITCH CIRCUIT
C1 0.01
S1 (POWER)
U POWER TRANSFORMER CIRCUIT
F1 T500mA
T1
L1
L2
AC110V/127V/220V/240V (50/60Hz)
F2 T315mA
J1
Y VOLTAGE ADJ. CIRCUIT
240V
220V
127V
110V
S2 (VOLTAGE ADJ.)
PL1
IC11 M5F78M05L REGULATOR
IC12 M5F7805L REGULATOR
IC13 M5F78M05L REGULATOR
IC14 M5F78M12L REGULATOR
IC15 M5F7812L REGULATOR
Q11 2SD1273PQ REGULATOR
Q12 2SB941PQ REGULATOR
Q13 2SC3311 MUTING DRIVE
Q51,52 2SB895QR MOTOR CONTROL
IC51 AN6914 COMPARATOR
D11 SVDS4VB20
C11 0.01
C12 0.01
C13 0.01
C14 0.01
C25 16V4700
C23 10V10000
C24 10V10000
D23 MA165TA
C32 6V47
D24 MA165TA
R16 560
C35 5.5V1F
C33 6V47
C34 6V47
R20 1W56
R19 1W56
D22 MA2082
C30 10V22
R14 3.3K
R15 3.3K
C15~18 0.01
D12~15 ISR35200TB
C26 25V3300
C27 25V3300
C37 25V22000
C38 25V22000
C39 16V47
C19 0.01
D17 SVDS2V20
D16 SVDS2V20
C20 0.01
R17 1.5K
D25 MA4082
C43 10V47
C41 10V47
C40 10V47
C42 16V47
C21 500V0.0068
R21 1/4W 5.6
D18 ISR35200TB
C28 50V470
R11 1.2K
C29 35V22
D21 MA4270 MTA
L50
C53 16V47
D62 ISR35200TB
C62 0.01
D61 ISR35200TB
C61 0.01
C63 10V2200
D19 MA167TA
R12 22K
R13 56K
R18 10K
C22 0.01
C31 50V4.7
D20 MA165TA
R56 390
R54 2.2K
L52
D52 MA701
C56 25V3.3
R58 10K
C58 16V220
C52 16V220
R55 390
R53 820
C57 16V220
L51
D51 MA701
C51 16V220
C55 50V3.3
R57 10K
C54 16V47
8.3V
5.5V
4.8V
(<17.2V>) 17.5V
11.9V
(<17.2V>) 17.5V
7.8V
8.4V
11.7V
(<34.2V>) -34.6V
-28.4V
-29.0V
-0.5V
11.7V
(<3.9V>) 11.3V
(0.7V(<1.1V>)
0.1V (<6.7V>)
6.2.4V
5.0V(<2.7V>)
13.0V
0V
-7.0V
(<2.6V>) 11.1V
10.3V (<11.3V>)
0.3V (<9.3V>)
2.2.4V
3.0V(<3.1V>)
REC
5V/5μsec.div
REC/PLAY
2.0Vp-p
1V/5μsec.div
REC/PLAY
4.8V
0
2V/5μsec.div
2.2 Vp-p
1V 5μsec.div
J3
+12V
+5.5V
+5V
-27V
AC5.3V
AC5.3V
GND
P J3 (PANEL CONTROL CIRCUIT)
J2
-10V
A.GND
+8.5V
+17V
A.GND
-19V
E J2 (AUDIO CIRCUIT)
J4
NRSTI
NPMUTE
+7.6V
GND
+5V
G J4 (SIGNAL PROCESSING •SYSTEM CONTROL• MAIN SERVO CIRCUIT)
J5
NPMUTE
D.GND
+5V
M.GND
+12V
A.GND
+12V
CYVS
CYVM
CAVM
CAVS
2LRT
I J5 (SUB SERVO CIRCUIT)
J38
+8.5V
GND
H J38 (P.B. CLOCK CIRCUIT)

Note 5):
- •S1 : Power switch in "on" position.

※ Figure in < > stand for DC-voltage in record mode.
Figure in ( ) stand for DC-voltage in playback mode.
Figure in (< >) stand for DC-voltage in record/ playback mode.

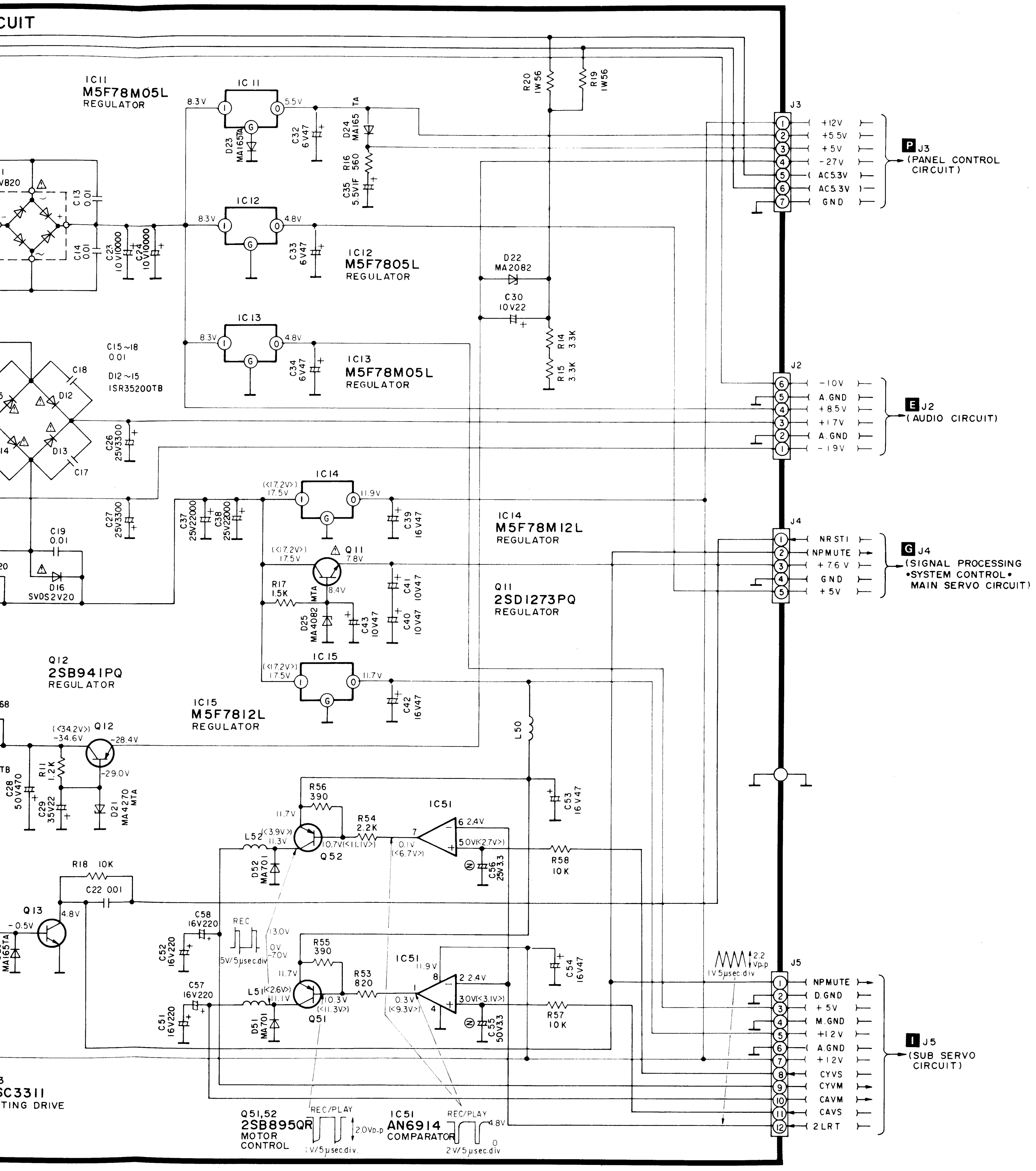
•Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

• Terminal guide

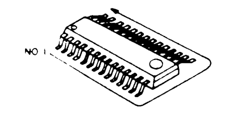

NO 1
MN74HC36
NO 1
1
2
3
1.Vin
2.GND
3.Vout
M5218P
8 Pin
NO 1
2SB709RTW,
2SC2404CTW,
E
B
C
2SD1328STW,
2SC3937TW
Anode
Cathode
Ca
A
Anode
Cathode
Ca
A

OWER SWITCH CIRCUIT/ Y VOLTAGE ADJ. CIRCUIT

CUIT

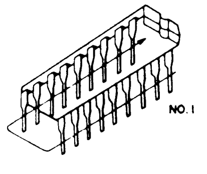

IC11
M5F78M05L
REGULATOR
IC 11
8.3V
5.5V
D23 MA165TA
C32 6V47
D24 MA165 TA
R16 560
C35 5.5V1F
R20 1W56
R19 1W56
VB20
C13 0.01
C14 0.01
C23 10V10000
C24 10V10000
IC12
8.3V
4.8V
C33 6V47
IC12
M5F7805L
REGULATOR
D22 MA2082
C30 10V22
R14 3.3K
R15 3.3K
IC 13
8.3V
4.8V
C15~18 0.01
D12~15 1SR35200TB
C18
D12
D13
C17
C34 6V47
IC13
M5F78M05L
REGULATOR
C26 25V3300
C27 25V3300
C37 25V22000
C38 25V22000
IC14
(<17.2V>) 17.5V
11.9V
C39 16V47
IC14
M5F78M12L
REGULATOR
C19 0.01
D16 SV0S2V20
(<17.2V>) 17.5V
Q11
7.8V
R17 1.5K
8.4V
MTA
D25 MA4082
C43 10V47
C41 10V47
C40 10V47
Q11
2SD1273PQ
REGULATOR
IC 15
(<17.2V>) 17.5V
11.7V
C42 16V47
IC15
M5F7812L
REGULATOR
Q12
2SB941PQ
REGULATOR
(<34.2V>) -34.6V
Q12
-28.4V
-29.0V
R11 1.2K
C28 50V470
C29 35V22
D21 MA4270 MTA
L50
C53 16V47
R56 390
11.7V
L52 (<3.9V>) 11.3V
R54 2.2K
10.7V(<11.1V>)
0.1V (<6.7V>)
IC51
6 2.4V
5 0V(<2.7V>)
D52 MA701
Q52
C56 25V3.3
R58 10K
R18 10K
C22 0.01
Q13
4.8V
-0.5V
MA165TA
C58 16V220
C52 16V220
REC
13.0V
0V
-7.0V
5V/5μsec.div
R55 390
11.7V
L51 (<2.6V>) 11.1V
10.3V (<11.3V>)
R53 820
IC51
11.9V
8
2 2.4V
0.3V (<9.3V>)
4
3 0V(<3.1V>)
C57 16V220
C51 16V220
D51 MA701
Q51
C54 16V47
C55 50V3.3
R57 10K
2.2 Vp-p
1V 5μsec.div
3
SC3311
TING DRIVE
Q51,52
2SB895QR
MOTOR CONTROL
REC/PLAY
2.0Vp-p
1V/5μsec.div.
IC51
AN6914
COMPARATOR
REC/PLAY
4.8V
0
2V/5μsec.div
J3
+12V
+5.5V
+5V
-27V
AC5.3V
AC5.3V
GND
P J3 (PANEL CONTROL CIRCUIT)
J2
-10V
A.GND
+8.5V
+17V
A.GND
-19V
E J2 (AUDIO CIRCUIT)
J4
NRSTI
NPMUTE
+7.6V
GND
+5V
G J4 (SIGNAL PROCESSING •SYSTEM CONTROL• MAIN SERVO CIRCUIT)
J5
NPMUTE
D.GND
+5V
M.GND
+12V
A.GND
+12V
CYVS
CYVM
CAVM
CAVS
2LRT
I J5 (SUB SERVO CIRCUIT)

• Terminal guide of IC's, transistors and diodes

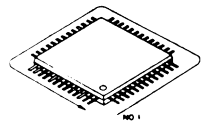


AN6914S	8 Pin	SVIUPD4053G1	16 Pin	AN6873S	18 Pin
MN74HC04S	14 Pin	MN74HC00S	14 Pin	MN4049BS	16 Pin
MN74HC08S		MN74HC02S		AN4558S	8 Pin
MN74HC74S		MN74HCU04S		AN7021S	18 Pin
TC74HC123F	16 Pin	MN74HC14S		AN7030S	42 Pin
MN74HC125S	14 Pin	MN74HC86S		MN4053BS	16 Pin
MN74HC175S		MN74HC132S		NJM319M	14 Pin
TC74HC193F	16 Pin	MN74HC157S	16 Pin	UPD4066BG	
M5218FPTA	8 Pin	MN74HC4066S	14 Pin	BA6431F	28 Pin
M5238FPTA		M5234FP		TC4S69FTW	5 Pin
NJM5532M(DD)		SN74LS624NS		NJM4560D	8 Pin

MN74HC367S	16 Pin

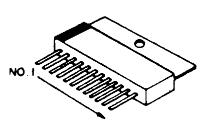


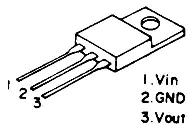
PCM56P-J	16 Pin	MB8464AL10SK	28 Pin	TLC271CPS	8 Pin
PCM78P-J	28 Pin	MB8416AL12SK	24 Pin		
SM5805P		CD74HC4046A	16 Pin		
YM3404B	16 Pin	SLYEDL080	8 Pin		
M74HC6004P	8 Pin	MN18982SDJ1	64 Pin		



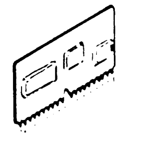
SAQ0001-2	96 Pin	MN188322SDK1	124 Pin
SAQ0002-1		M50754-430FP	72 Pin
SAQ0003-1	80 Pin	AN8320S	48 Pin
MN52080SDH	84 Pin	MN53020SDF	84 Pin
MN53010PEH	42 Pin		

BA6247	10 Pin



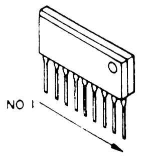

1
2
3
1.Vin
2.GND
3.Vout

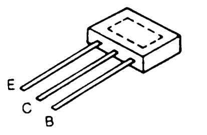
M5F78M05L	3 Pin	M5F79M12L	3 Pin
M5F7812L		M5F79M05L	
M5F7805L			
M5F78M12L			



SVHHAF0613	6 Pin
SVHHAF0614	7 Pin

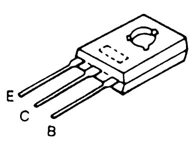
M5218P	8 Pin



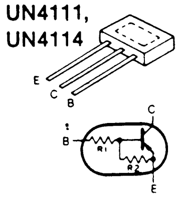


2SC3311,
2SD1424,
2SC3315DTA

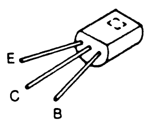
2SB895



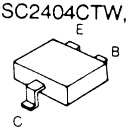
UN4111,
UN4114


E
C
B
B
R1
R2
C
E

2SD893

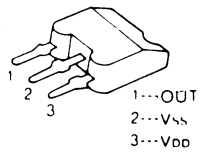


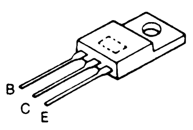
2SB709RTW,
2SC2404CTW,



2SD1328STW,
2SC3937TW

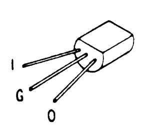
MN1280-R


1
2
3
1···OUT
2···Vss
3···VDD

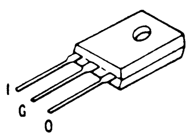


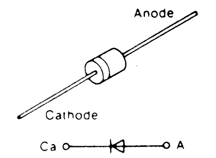
2SD1273,
2SB941

AN8005,
AN78L09,

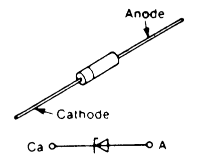


AN78N05



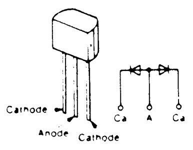

Anode
Cathode
Ca
A

1SR35200,
MA165,
MA167,
SVDS2V20,
MA701

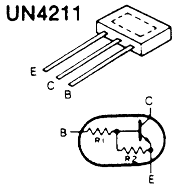

Anode
Cathode
Ca
A

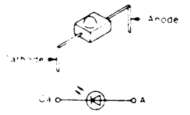
MA4082M,
MA4270M,
MA2082

SVDMC911


Cathode
Anode
Cathode
Ca
A
Ca

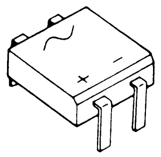
UN4211


E
C
B
B
R1
R2
C
E

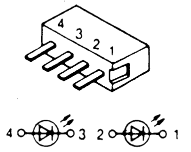

Anode
Cathode
Ca
A

SVGAY2202,
SVGPY2222,
SVGBR2222,
LN57LA

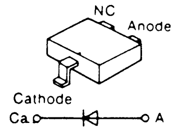
SVDS4VB20



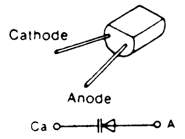
LN0202RP2,
LN0202YP4



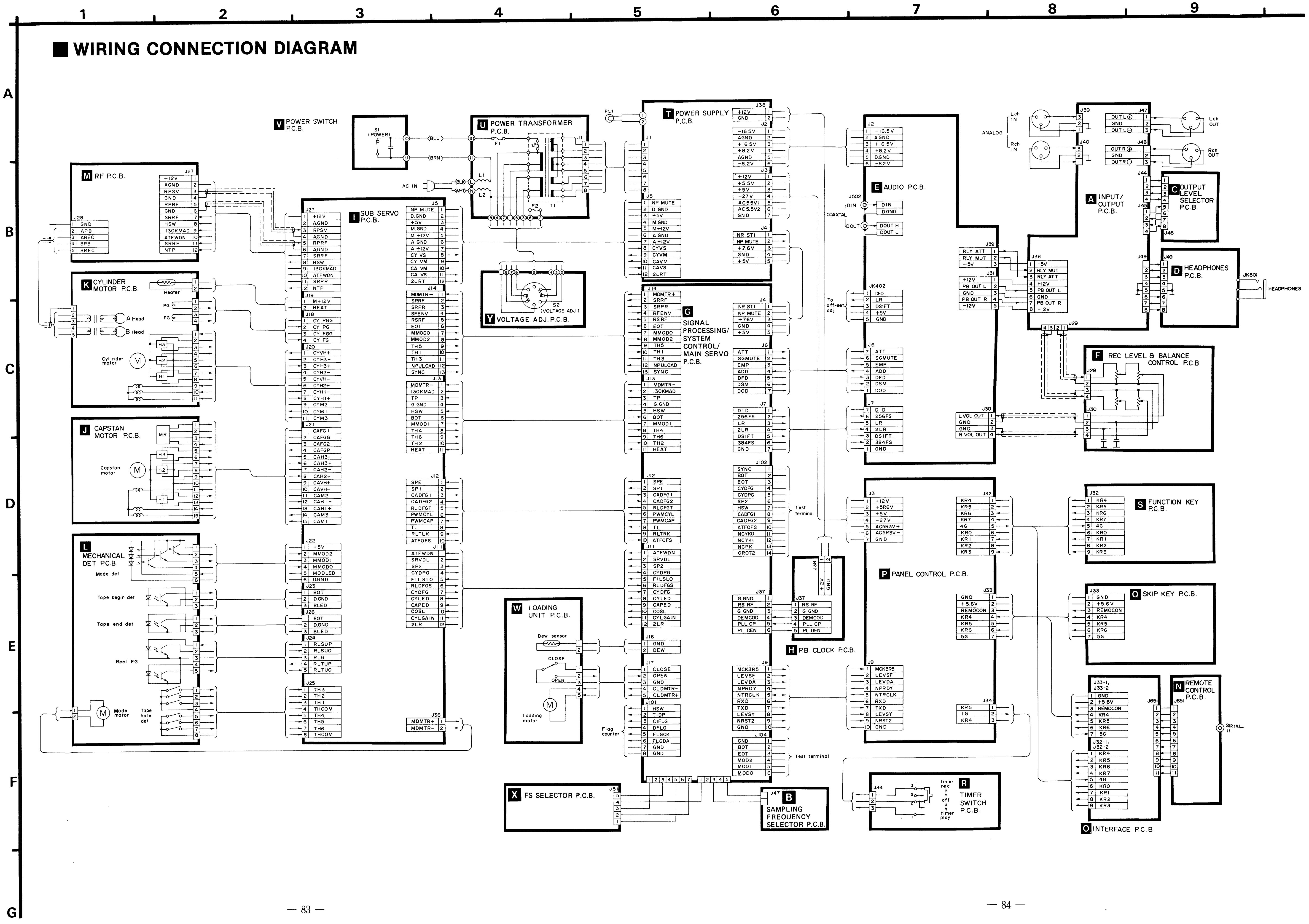
MA151KTW,
MA3082MTW,
MA704TW


NC
Anode
Cathode
Ca
A

FC52M

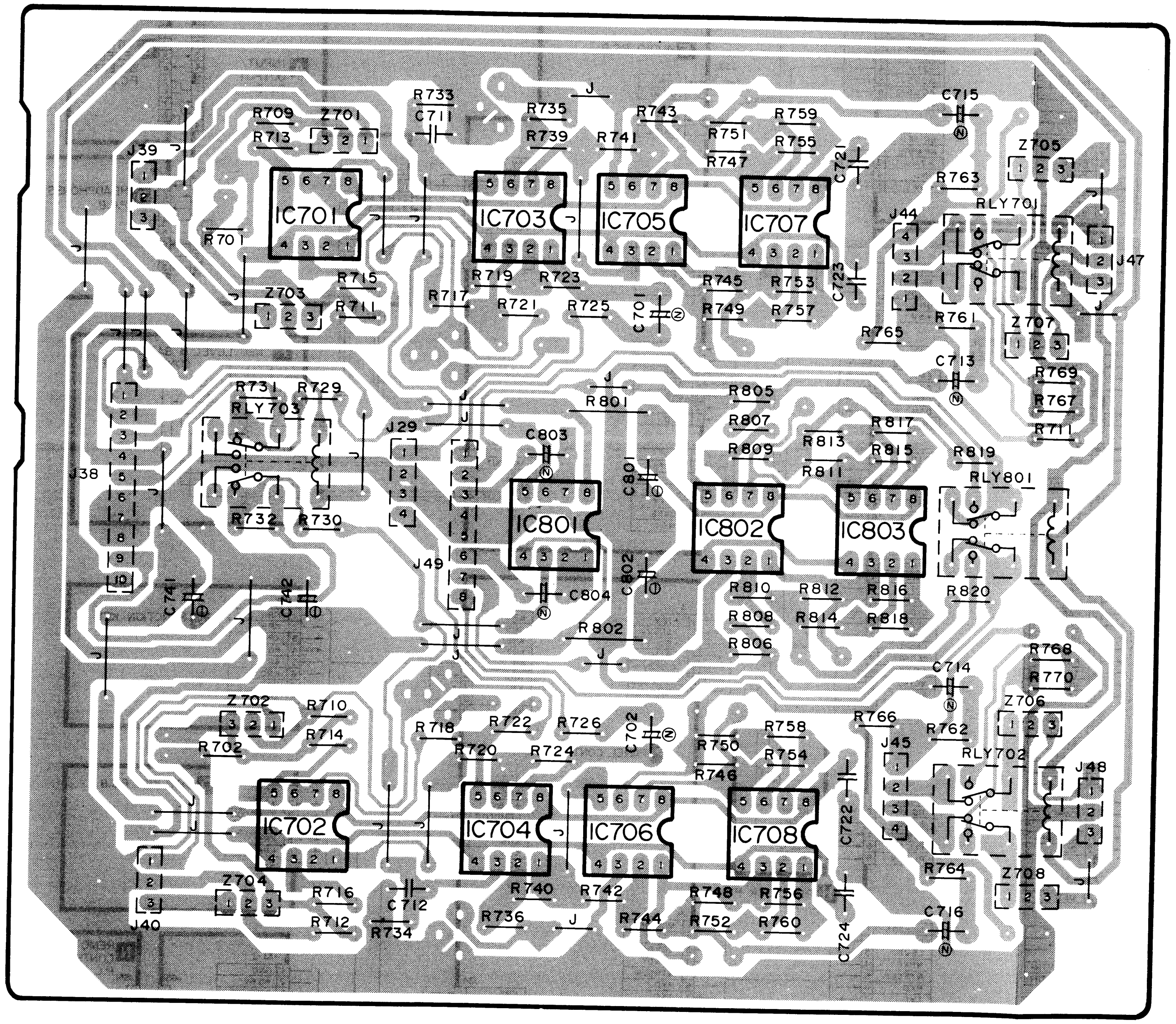

Cathode
Anode
Ca
A

WIRING CONNECTION DIAGRAM

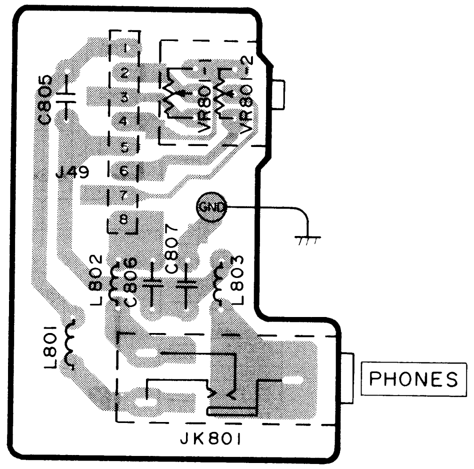

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
G
V POWER SWITCH P.C.B.
S1 (POWER)
U POWER TRANSFORMER P.C.B.
F1
L1
L2
F2
T1
AC IN
BLU
BRN
BLK
WHT
Y VOLTAGE ADJ. P.C.B.
S2 (VOLTAGE ADJ.)
PL1
T POWER SUPPLY P.C.B.
M RF P.C.B.
J27
+12V
AGND
RPSV
GND
RPRF
SRRF
HSW
130KMAD
ATFWDN
SRRP
NTP
J28
GND
APB
AREC
BPB
BREC
K CYLINDER MOTOR P.C.B.
Heater
A Head
B Head
Cylinder motor
J CAPSTAN MOTOR P.C.B.
Capstan motor
L MECHANICAL DET P.C.B.
Mode det
Tape begin det
Tape end det
Reel FG
Mode motor
Tape hole det
I SUB SERVO P.C.B.
J5
J14
J13
J12
J11
J36
J19
J18
J20
J21
J22
J23
J26
J24
J25
W LOADING UNIT P.C.B.
Dew sensor
CLOSE
OPEN
Loading motor
Flag counter
G SIGNAL PROCESSING/ SYSTEM CONTROL/ MAIN SERVO P.C.B.
J38
J2
J3
J4
J6
J7
J102
J37
J9
J104
J16
J17
J101
Test terminal
To off-set adj
H P.B. CLOCK P.C.B.
X FS SELECTOR P.C.B.
J51
B SAMPLING FREQUENCY SELECTOR P.C.B.
J47
E AUDIO P.C.B.
J502
DIN
DOUT
COAXTAL
JK402
P PANEL CONTROL P.C.B.
J32
J33
J34
A INPUT/ OUTPUT P.C.B.
ANALOG
Lch IN
Rch IN
Lch OUT
Rch OUT
J39
J40
J47
J48
J44
J45
J46
J49
OUT L⊕
GND
OUT L⊖
OUT R⊕
OUT R⊖
C OUTPUT LEVEL SELECTOR P.C.B.
D HEADPHONES P.C.B.
JK801
HEADPHONES
J38
J31
J29
J30
RLY ATT
RLY MUT
-5V
PB OUT L
PB OUT R
-12V
F REC LEVEL & BALANCE CONTROL P.C.B.
L VOL OUT
R VOL OUT
S FUNCTION KEY P.C.B.
Q SKIP KEY P.C.B.
O INTERFACE P.C.B.
J33-1, J33-2
J32-1, J32-2
J651
N REMOTE CONTROL P.C.B.
SRIAL II
R TIMER SWITCH P.C.B.
timer rec
off
timer play

PRINTED CIRCUIT BOARDS

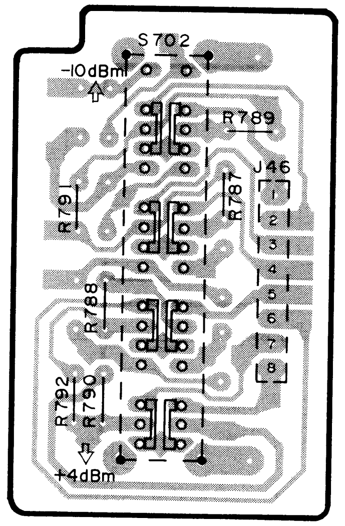
A INPUT / OUTPUT P.C.B.


IC701
IC702
IC703
IC704
IC705
IC706
IC707
IC708
IC801
IC802
IC803
RLY701
RLY702
RLY703
RLY801
J29
J38
J39
J40
J44
J45
J47
J48
J49
Z701
Z702
Z703
Z704
Z705
Z706
Z707
Z708
C701
C702
C711
C712
C713
C714
C715
C716
C721
C722
C723
C724
C741
C742
C801
C802
C803
C804
R701
R702
R709
R710
R711
R712
R713
R714
R715
R716
R717
R718
R719
R720
R721
R722
R723
R724
R725
R726
R729
R730
R731
R732
R733
R734
R735
R736
R739
R740
R741
R742
R743
R744
R745
R746
R747
R748
R749
R750
R751
R752
R753
R754
R755
R756
R757
R758
R759
R760
R761
R762
R763
R764
R765
R766
R767
R768
R769
R770
R771
R801
R802
R805
R806
R807
R808
R809
R810
R811
R812
R813
R814
R815
R816
R817
R818
R819
R820
J

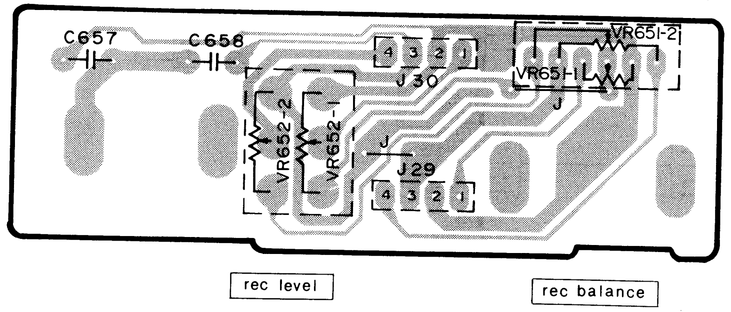
D HEADPHONES P.C.B.


C805
J49
VR801-1
VR801-2
GND
L802
C806
C807
L803
L801
JK801
PHONES

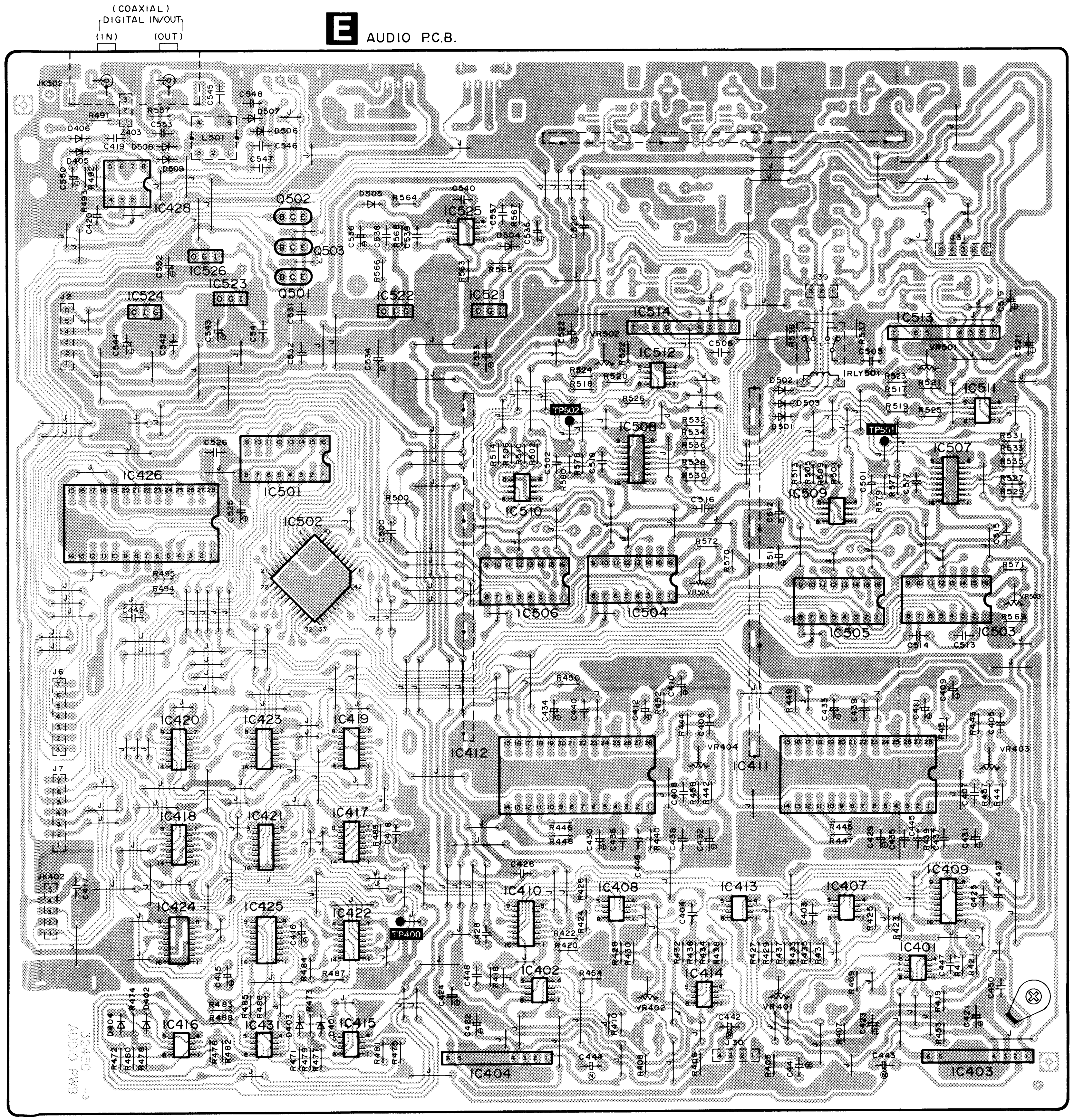
C OUTPUT LEVEL SELECTOR P.C.B.


S702
-10dBm
R789
R791
R787
J46
R788
R792
R790
+4dBm

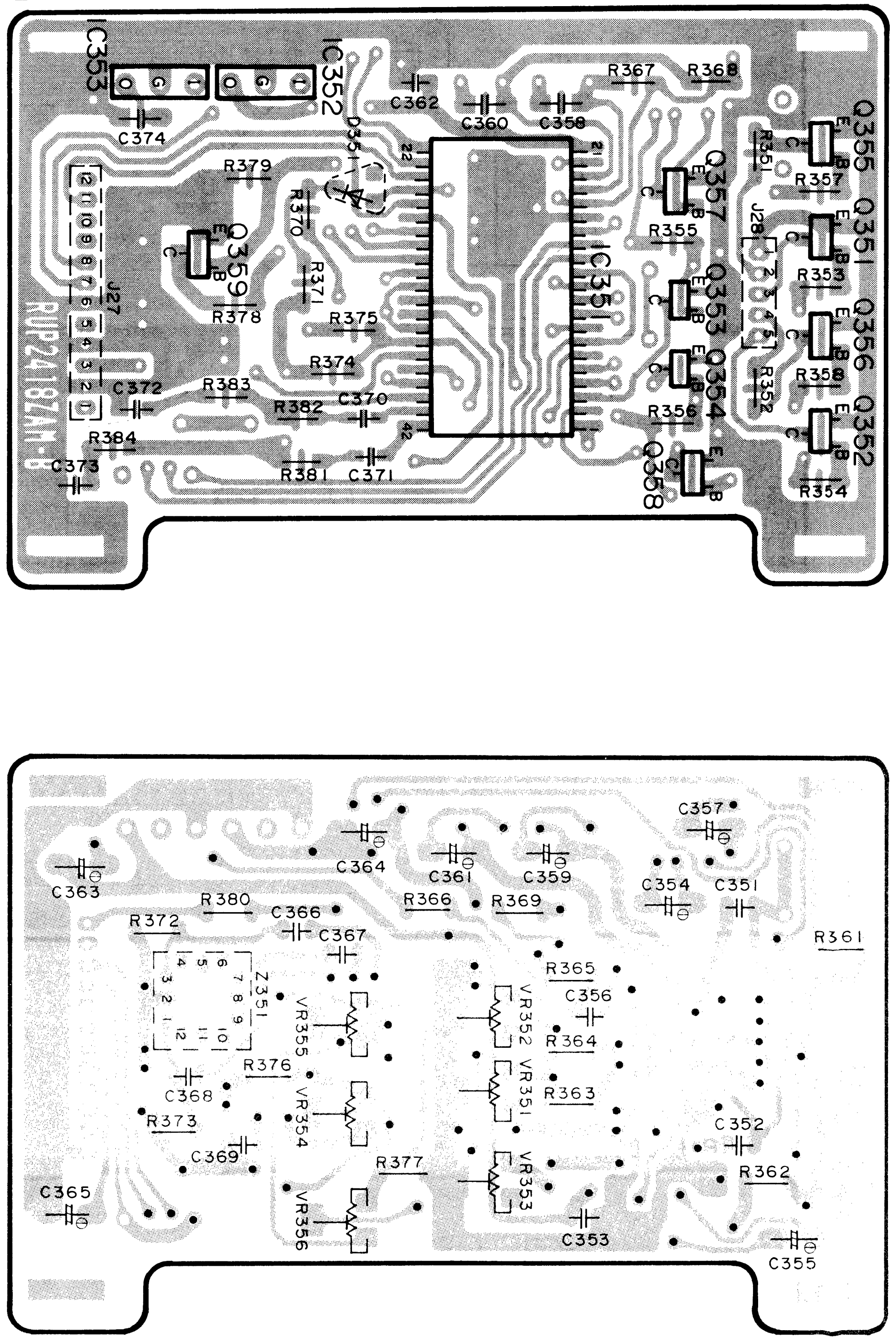
F REC LEVEL & BALANCE CONTROL P.C.B.


C657
C658
J30
VR651-2
VR651-1
VR652-2
VR652-1
J29
J
rec level
rec balance

E AUDIO P.C.B.

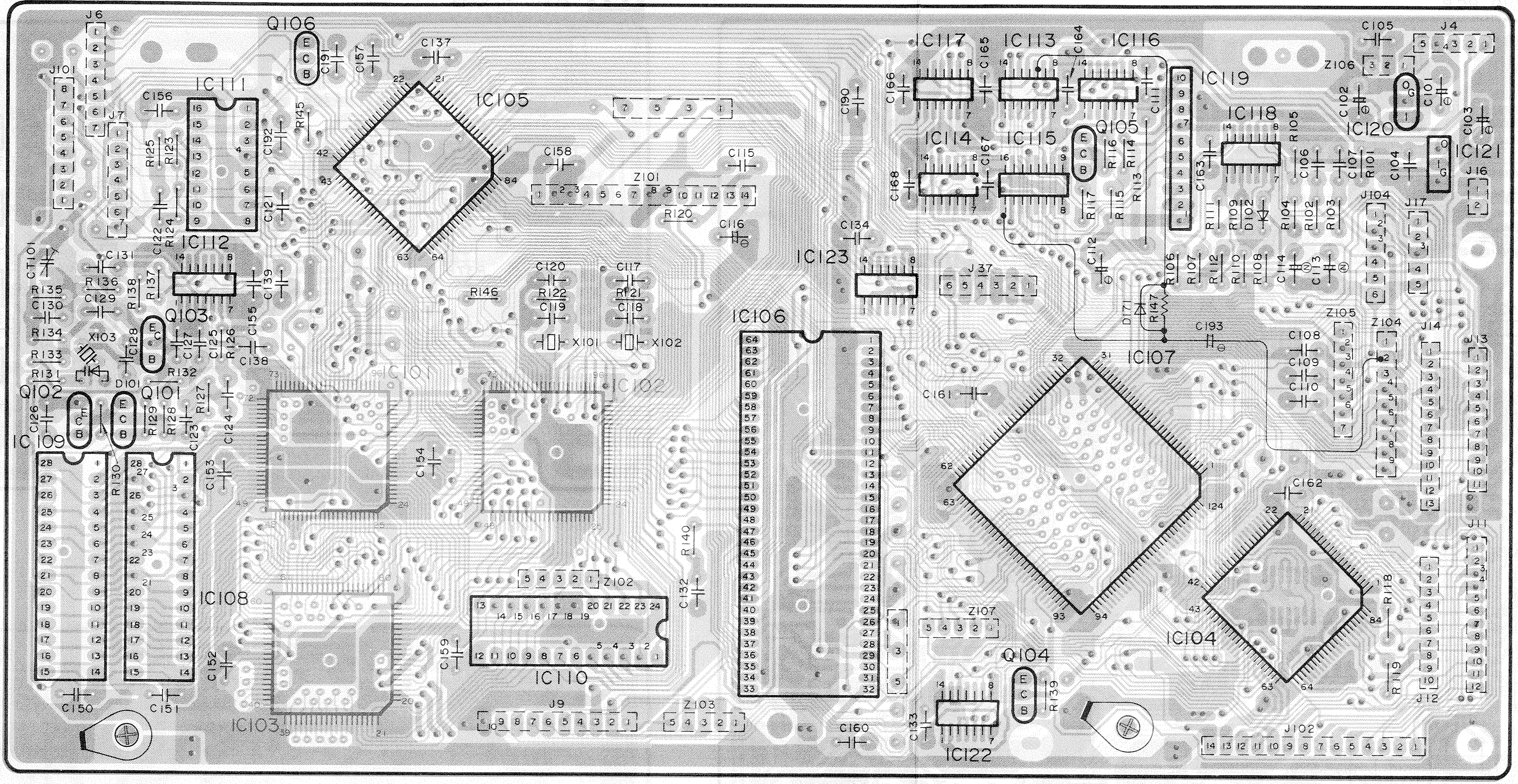

(COAXIAL)
DIGITAL IN/OUT
(IN)
(OUT)
JK502
JK402
IC428
IC426
IC501
IC502
IC524
IC526
IC523
IC522
IC521
IC525
Q502
Q503
Q501
L501
IC514
IC512
IC513
IC508
IC510
IC509
IC507
IC511
IC506
IC504
IC505
IC503
IRLY501
TP502
TP501
TP400
VR502
VR501
VR503
VR504
IC412
IC411
IC420
IC423
IC419
IC418
IC421
IC417
IC424
IC425
IC422
IC410
IC408
IC413
IC407
IC409
IC402
IC414
IC401
IC416
IC431
IC415
IC404
IC403
VR404
VR403
VR402
VR401
J6
J7
J2
J30
32450
AUDIO PWB

M RF P.C.B.

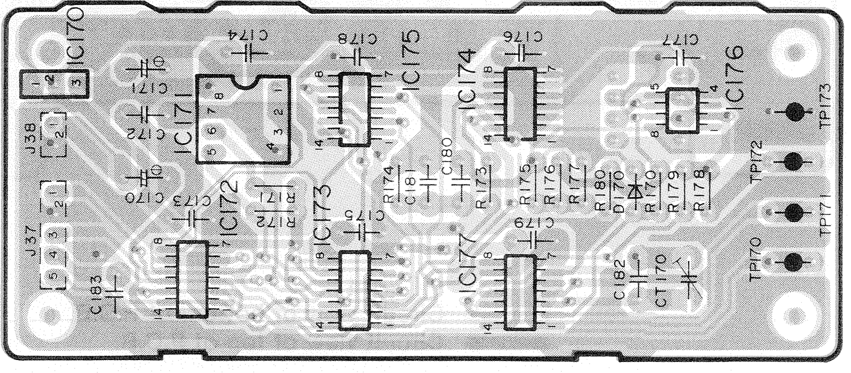

IC353
IC352
IC351
C374
C362
C360
C358
R367
R368
R379
R370
R371
Q359
R378
R375
R374
C372
R383
R382
C370
R384
C373
R381
C371
J27
RDP241874M-B
Q355
Q357
Q351
Q353
Q356
Q354
Q352
Q358
R357
R355
R353
R358
R356
R354
R351
R352
J28
C357
C364
C361
C359
C354
C351
C363
R380
C366
R366
R369
R361
R372
C367
R365
C356
Z351
VR355
VR352
VR351
R364
R376
R363
C368
VR354
R373
C369
C352
R377
VR353
R362
C365
VR356
C353
C355

● Circuit view of bottom of P.C.B.
● Circuit view of top of P.C.B.

G SIGNAL PROCESSING, SYSTEM CONTROL, MAIN SERVO P.C.B.


IC101
IC102
IC103
IC104
IC105
IC106
IC107
IC108
IC109
IC110
IC111
IC112
IC113
IC114
IC115
IC116
IC117
IC118
IC119
IC120
IC121
IC122
IC123
Q101
Q102
Q103
Q104
Q105
Q106
X101
X102
X103
Z101
Z102
Z103
Z104
Z105
Z106
Z107
J4
J6
J7
J9
J11
J12
J13
J14
J16
J17
J37
J101
J102
J104
D101
D171
CT101

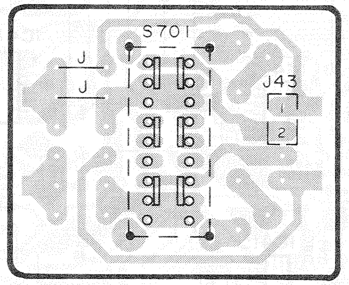
H P.B. CLOCK P.C.B.


IC170
IC171
IC172
IC173
IC174
IC175
IC176
IC177
J37
J38
TP170
TP171
TP172
TP173
CT170
D170

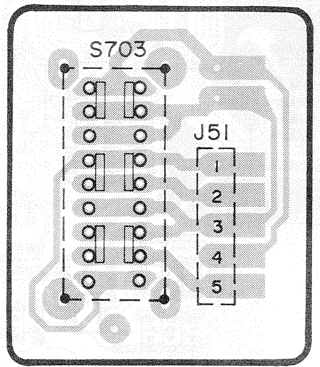
Circuit view of bottom of P.C.B.

● Circuit view of top of P.C.B.

B SAMPLING FREQUENCY SELECTOR P.C.B.



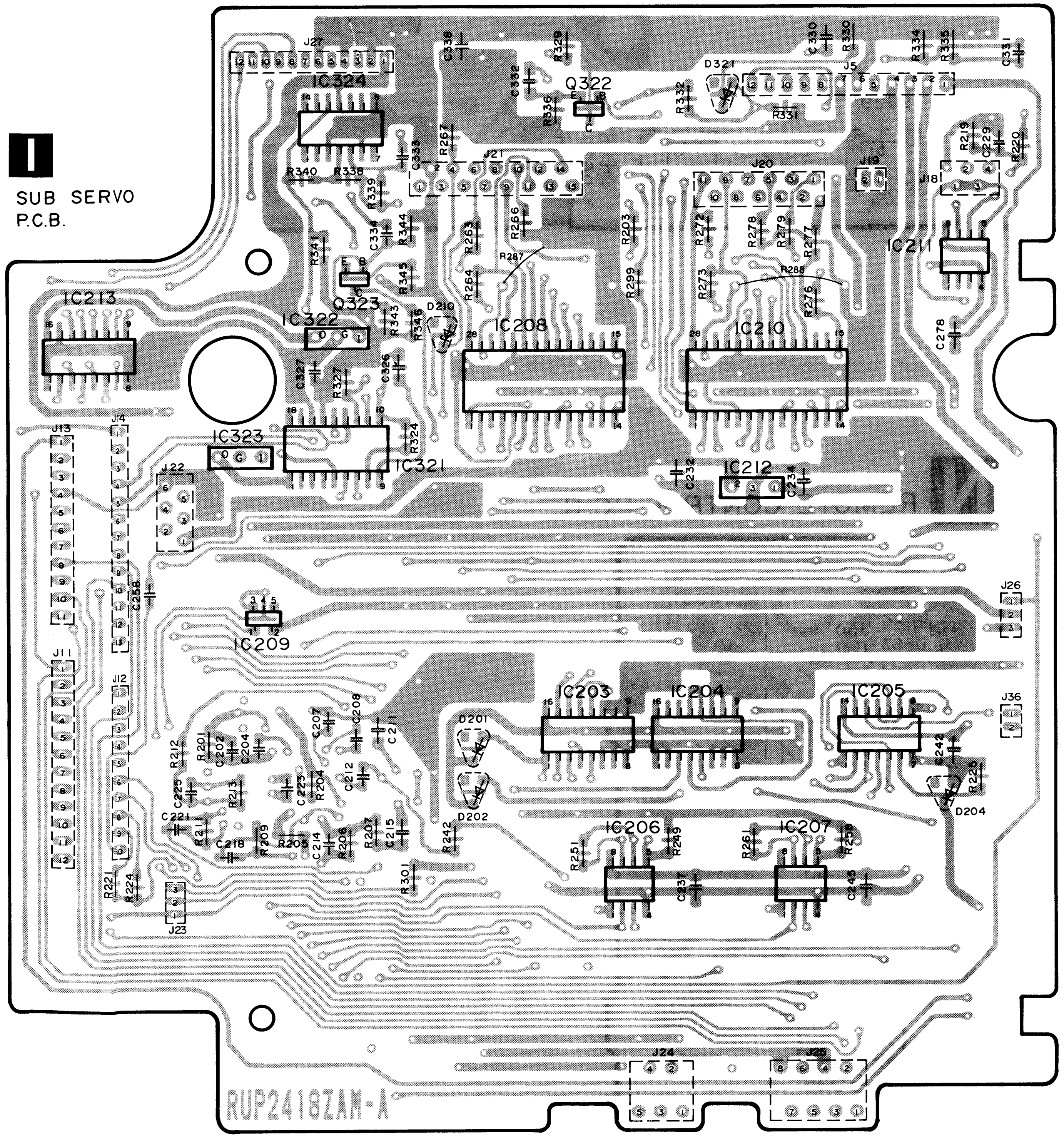
X FS SELECTOR P.C.B.

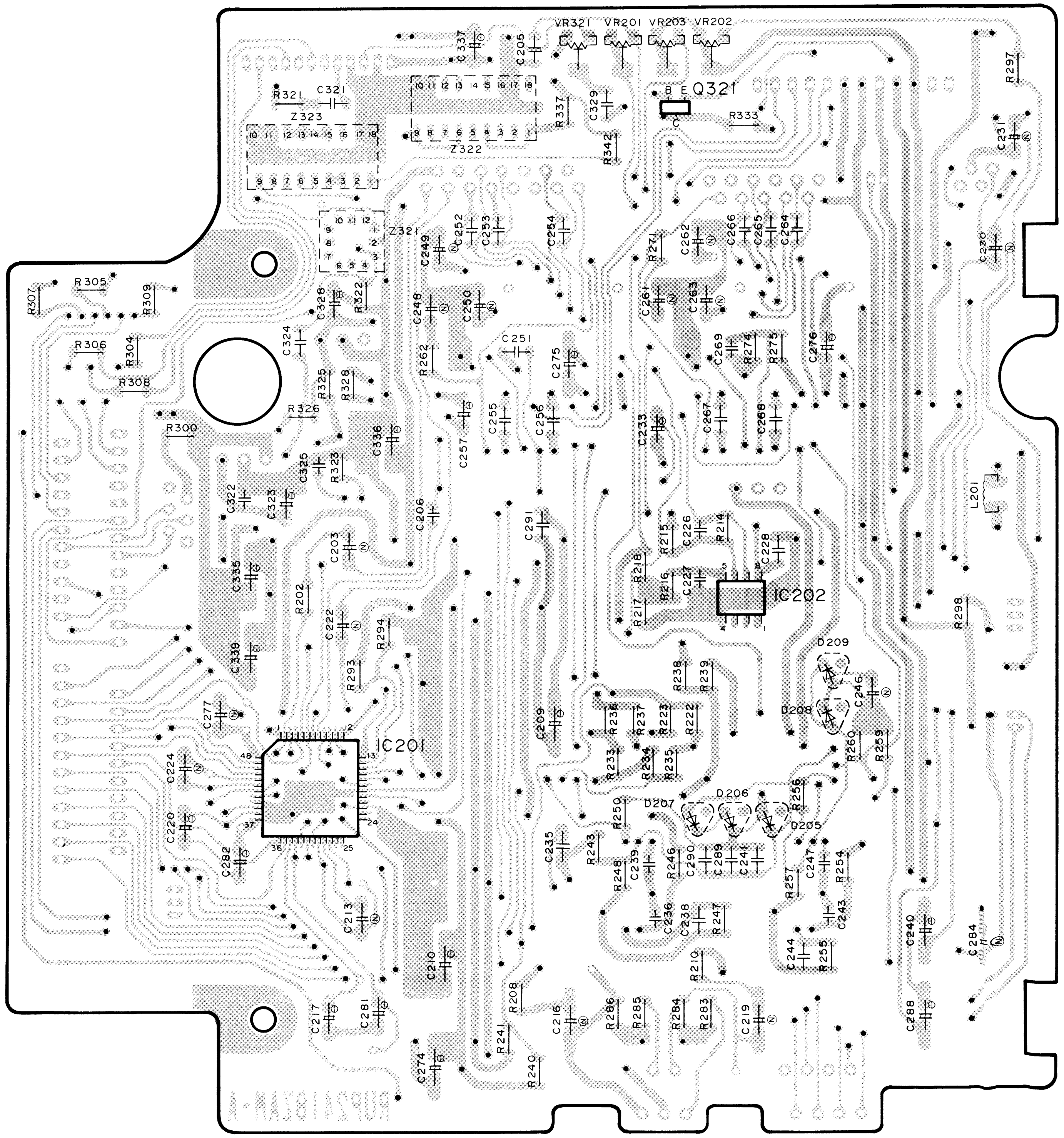

S703
J51
1
2
3
4
5

11 12 13 14 15 16 17 18 19 20

I

SUB SERVO P.C.B.


RUP2418ZAM-A
IC324
IC213
IC322
IC323
IC321
Q322
Q323
D321
D210
IC208
IC210
IC211
IC212
IC209
IC203
IC204
IC205
IC206
IC207
D201
D202
D204
J27
J5
J21
J20
J19
J18
J13
J14
J22
J11
J12
J23
J24
J25
J26
J36


RUP2418ZAM-A
VR321
VR201
VR203
VR202
Q321
Z323
Z322
Z321
IC201
IC202
D209
D208
D207
D206
D205
L201

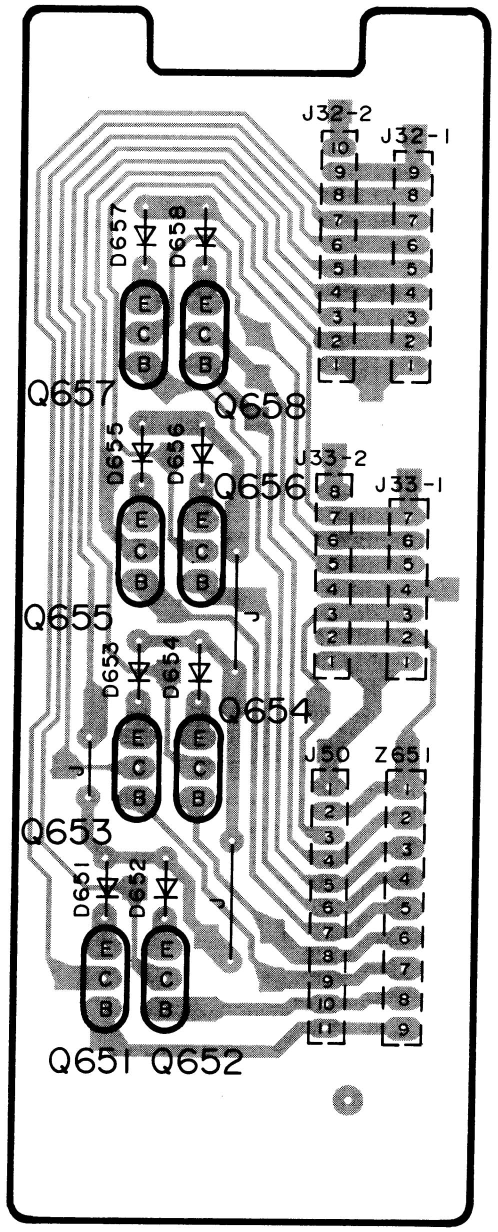
●┈┈● Circuit view of bottom of P.C.B.

●━━● Circuit view of top of P.C.B.

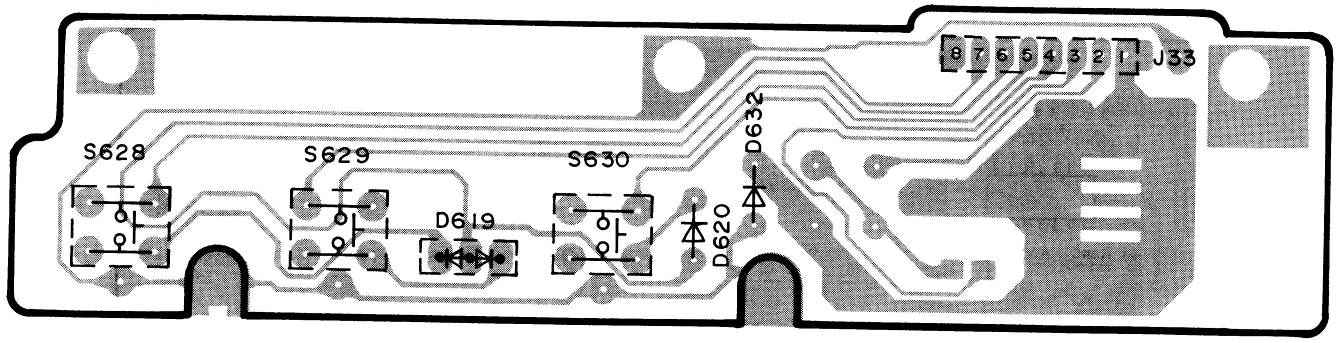
1 2 3 4 5 6 7 8 9

A B C D E F G

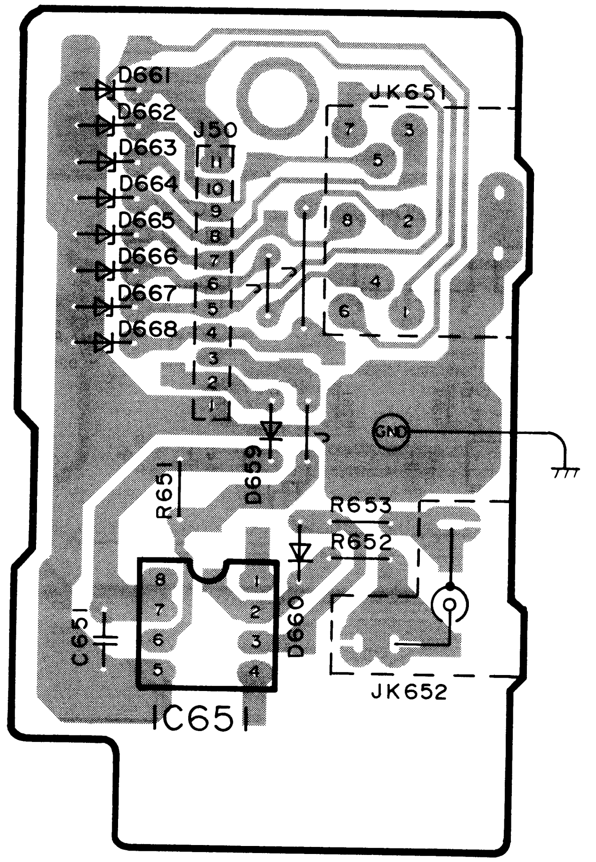
O INTERFACE P.C.B.


J32-2
J32-1
D657
D658
Q657
Q658
D655
D656
Q656
J33-2
J33-1
Q655
D653
D654
Q654
Q653
J50
Z651
D651
D652
Q651
Q652
E
C
B

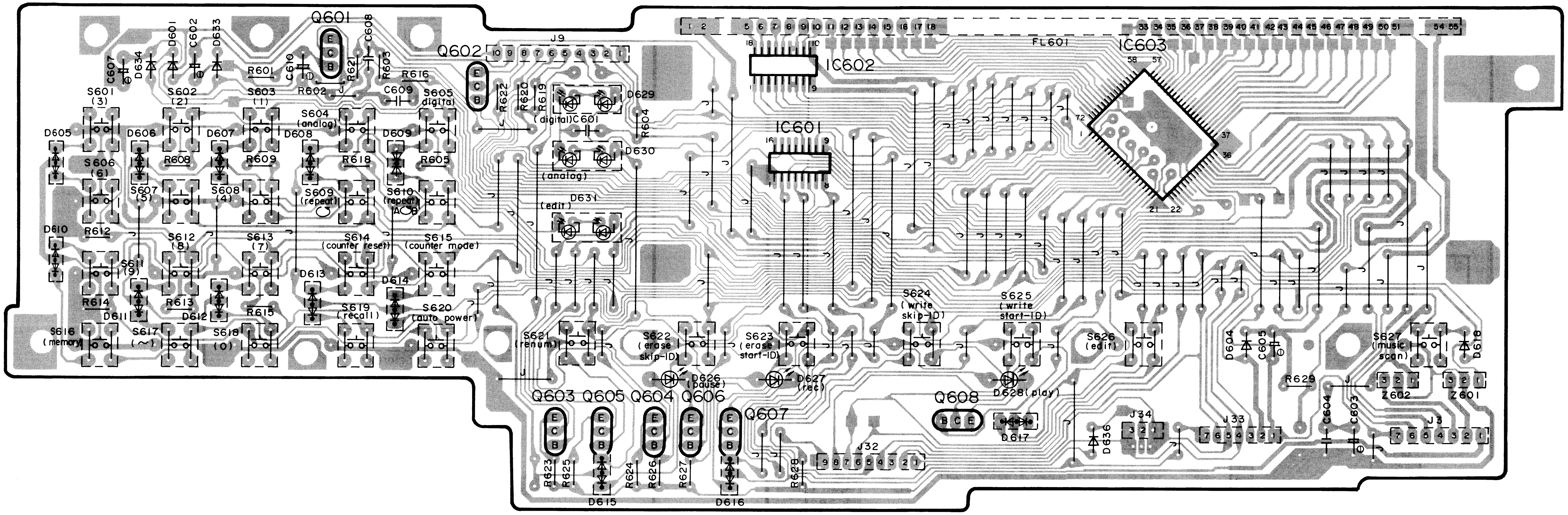
Q SKIP KEY P.C.B.


J33
8 7 6 5 4 3 2 1
S628
S629
S630
D619
D620
D632

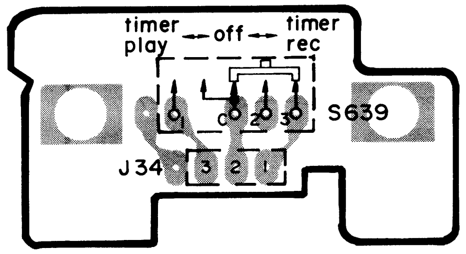
N REMOTE CONTROL P.C.B.


D661
D662
D663
D664
D665
D666
D667
D668
J50
JK651
GND
D659
R651
R653
R652
D660
C651
IC651
JK652

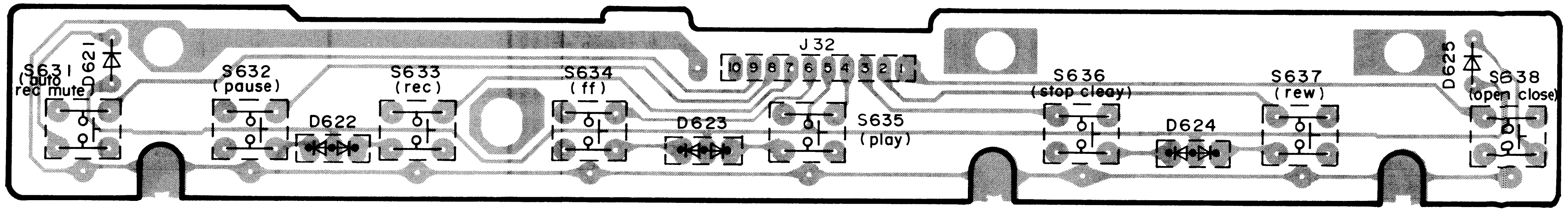
P PANEL CONTROL P.C.B.


Q601
E
C
B
Q602
J9
10 9 8 7 6 5 4 3 2 1
D601
C602
D633
C607
D634
C608
C610
R621
R603
R601
R602
R616
C609
R622
R620
R619
D629
R604
(digital)
C601
D630
(analog)
D631
(edit)
S601 (3)
S602 (2)
S603 (1)
S604 (analog)
S605 digital
D605
D606
D607
D608
D609
R608
R609
R618
R605
S606 (6)
S607 (5)
S608 (4)
S609 (repeat)
S610 (repeat) A B
D610
R612
S611 (9)
S612 (8)
S613 (7)
S614 (counter reset)
S615 (counter mode)
D613
D614
R614
R613
R615
D611
D612
S616 (memory)
S617 (~)
S618 (0)
S619 (recall)
S620 (auto power)
1 2 5 6 7 8 9 10 11 12 13 14 15 16 17 18
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 54 55
FL601
IC602
18
10
1
9
IC603
58 57
72
1
37
36
21 22
IC601
16
9
8
S621 (renum)
S622 (erase skip-ID)
S623 (erase start-ID)
S624 (write skip-ID)
S625 (write start-ID)
S626 (edit)
S627 (music scan)
D604
C605
D618
D626 (pause)
D627 (rec)
D628 (play)
R629
Z602
Z601
3 2 1
Q603
Q605
Q604
Q606
Q607
Q608
B C E
D617
J34
J33
J3
7 6 5 4 3 2 1
D636
C604
C603
J32
9 8 7 6 5 4 3 2 1
R623
R625
R624
R626
R627
R628
D615
D616

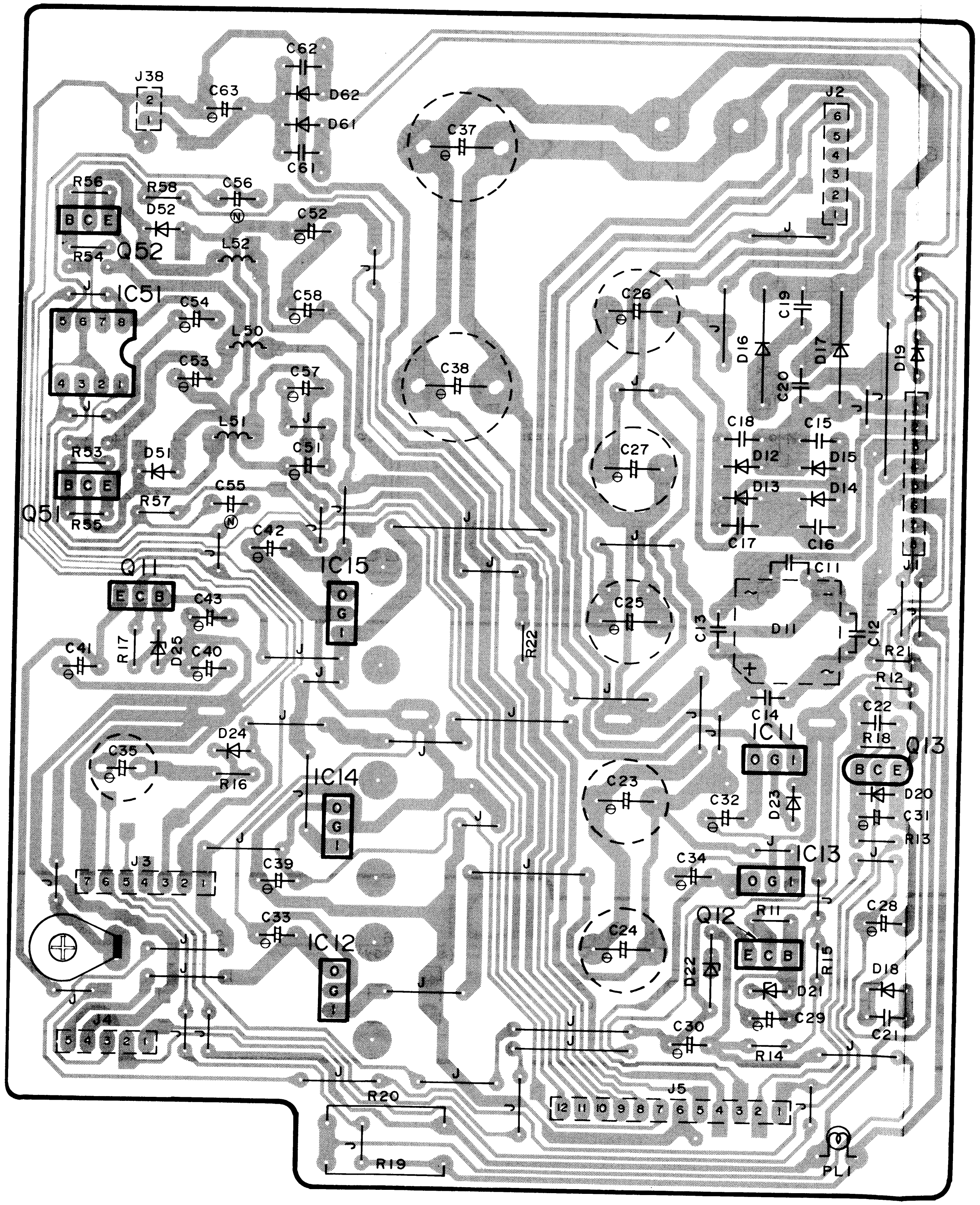
R TIMER SWITCH P.C.B.


timer play
off
timer rec
1
C
2
3
S639
J34
3 2 1

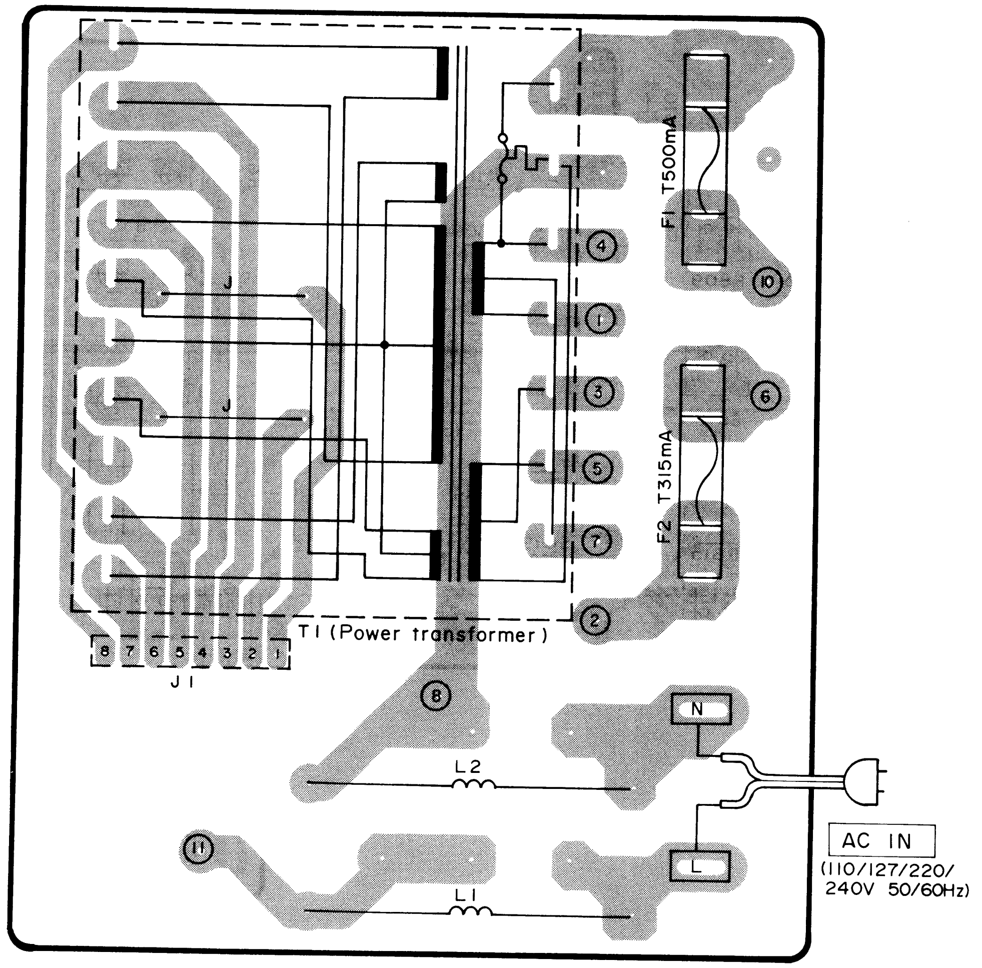
S FUNCTION KEY P.C.B.


S631 (auto rec mute)
D621
S632 (pause)
D622
S633 (rec)
S634 (ff)
J32
10 9 8 7 6 5 4 3 2 1
D623
S635 (play)
S636 (stop clear)
D624
S637 (rew)
D625
S638 (open close)

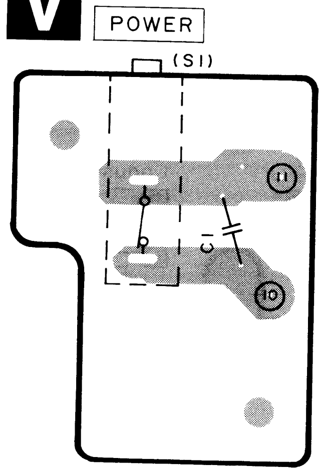
T POWER SUPPLY P.C.B.


J38
C63
C62
D62
D61
C61
C37
J2
R56
R58
C56
D52
C52
Q52
R54
L52
IC51
C54
C58
C26
C19
D16
D17
D19
L50
C53
C57
C38
C20
L51
C51
R53
D51
C55
C27
C18
C15
D12
D15
D13
D14
Q51
R55
R57
C42
C17
C16
IC15
Q11
C11
C43
C25
C13
D11
C12
R17
D25
C40
C41
R22
R21
R12
C14
C22
D24
C35
IC11
R18
Q13
R16
IC14
C23
C32
D23
D20
C31
R13
C39
J3
C34
IC13
C33
IC12
Q12
R11
C28
C24
D22
R15
D18
D21
C29
C21
J4
C30
R14
R20
J5
R19
PL1

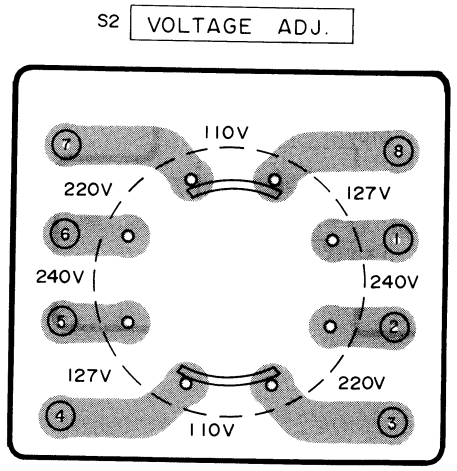
U POWER TRANSFORMER P.C.B.


F1 T500mA
F2 T315mA
T1 (Power transformer)
J1
L2
L1
N
L
AC IN
(110/127/220/
240V 50/60Hz)

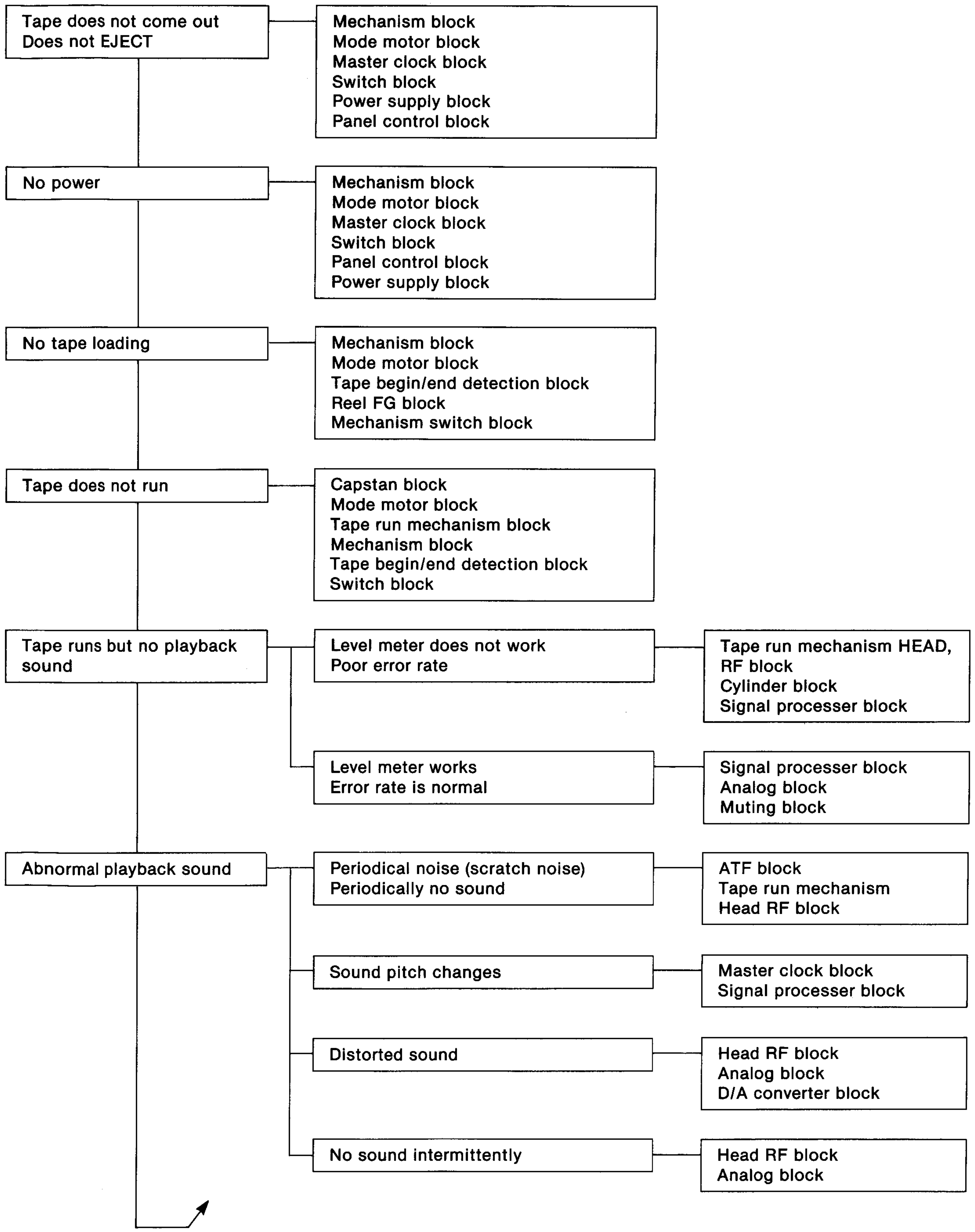
V POWER SWITCH P.C.B.

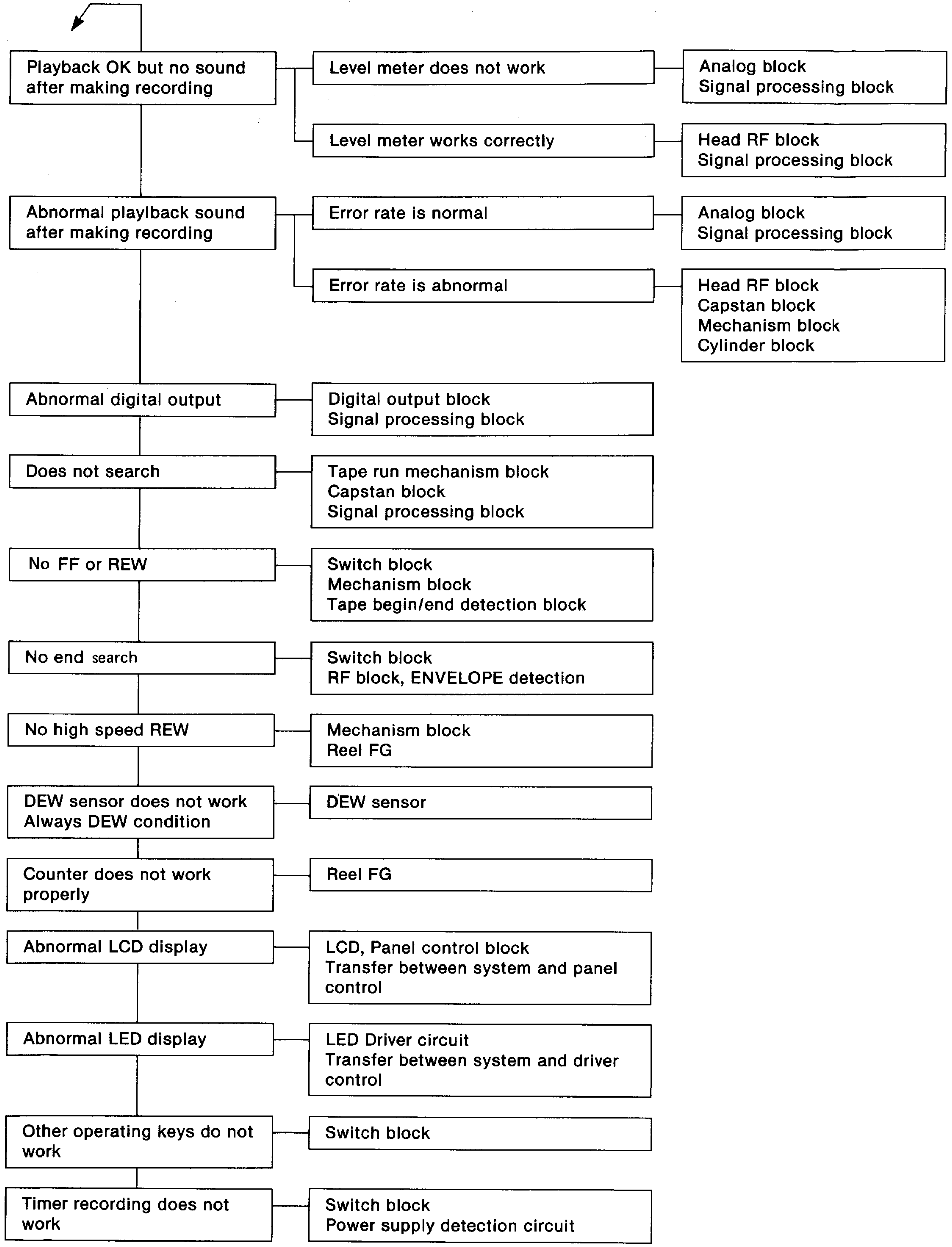


Y VOLTAGE ADJ. P.C.B.


S2 VOLTAGE ADJ.
110V
220V
127V
240V
240V
127V
220V
110V

■ TROUBLESHOOTING


Tape does not come out
Does not EJECT
Mechanism block
Mode motor block
Master clock block
Switch block
Power supply block
Panel control block
No power
Mechanism block
Mode motor block
Master clock block
Switch block
Panel control block
Power supply block
No tape loading
Mechanism block
Mode motor block
Tape begin/end detection block
Reel FG block
Mechanism switch block
Tape does not run
Capstan block
Mode motor block
Tape run mechanism block
Mechanism block
Tape begin/end detection block
Switch block
Tape runs but no playback sound
Level meter does not work
Poor error rate
Tape run mechanism HEAD, RF block
Cylinder block
Signal processer block
Level meter works
Error rate is normal
Signal processer block
Analog block
Muting block
Abnormal playback sound
Periodical noise (scratch noise)
Periodically no sound
ATF block
Tape run mechanism
Head RF block
Sound pitch changes
Master clock block
Signal processer block
Distorted sound
Head RF block
Analog block
D/A converter block
No sound intermittently
Head RF block
Analog block


Playback OK but no sound after making recording
Level meter does not work
Analog block
Signal processing block
Level meter works correctly
Head RF block
Signal processing block
Abnormal playlback sound after making recording
Error rate is normal
Analog block
Signal processing block
Error rate is abnormal
Head RF block
Capstan block
Mechanism block
Cylinder block
Abnormal digital output
Digital output block
Signal processing block
Does not search
Tape run mechanism block
Capstan block
Signal processing block
No FF or REW
Switch block
Mechanism block
Tape begin/end detection block
No end search
Switch block
RF block, ENVELOPE detection
No high speed REW
Mechanism block
Reel FG
DEW sensor does not work
Always DEW condition
DEW sensor
Counter does not work properly
Reel FG
Abnormal LCD display
LCD, Panel control block
Transfer between system and panel control
Abnormal LED display
LED Driver circuit
Transfer between system and driver control
Other operating keys do not work
Switch block
Timer recording does not work
Switch block
Power supply detection circuit

■ KEY POINTS FOR TROUBLESHOOTING

(1) Mechanism block

- Loading mechanism
  - Post roller
  - Tension regulator
  - Pinch roller
  - Brake lever

- Brake mechanism
  - Brake lever

- Mechanism switch block
  - Tape hole detection switch
  - Cassette detection switch

- Reel FG block
  - Detection photo transistor
  - Detection LED
  - Reel FG AMP (servo P.C.B.)

- FPC & FPC connector

(2) Mode motor block

- Mode motor
- Mode sensor
- FPC & FPC connector
- Mode motor driver circuit
- Mode motor control circuit

(3) Master clock block

- 28MHz (signal name: 28MCK)
- 7MHz (signal name: 7MCK)
- 9.4MHz (signal name: FCH)

(4) Switch block

- FPC & FPC connector
- Switch

(5) HEAD, RF block

- Head FPC & FPC connector
- Head dirty
- Head cracked or damaged
- RF recording current
- Playback eye pattern

(6) Tape begin/end detection block

- Begin/end detection photo transistor
- Begin/end detection LED
- Comparator circuit
- FPC & FPC connector

(7) Power supply block

- Power supply regulator output
- Fuse
- Relay & relay driver

(8) Capstan block

- Capstan FG
- FG AMP
- Motor driver output
- Motor current

(9) Cylinder block

- Cylinder FG
- Cylinder FG
- FG AMP
- PG AMP
- Motor driver output
- Motor current

(10) ATF block

- RF ATF output
- ATF SYNC output

(11) Signal processing block

- Data & clock to DA
- Data & clock to AD
- All clocks

(12) Digital output block

- Digital output PB

(15) Concerning the error rate

If the error rate is functioning correctly, it can be judged that all operations up to signal processing are functioning correctly, in other words, that there is no problem in the transport system.
Thus, when there is a problem with the playback sound, if the error rate is functioning correctly, the problem can be assumed to exist in the analog system.

(16) Concerning the level meter

If the level meter is functioning correctly during playback, it indicates that the mechanism, head, and RF sections are all functioning correctly. In addition, if the level meter is functioning correctly during recording, it indicates that the analog system (input amplifier and AD) is functioning correctly.

(13) Panel control block

- Panel control clock
- Panel/system control transfer
- Panel control reset

(14) Analog block

- Input amplifier
- Output amplifier
- Muting circuit
- AD converter
- DA converter

RESISTORS & CAPACITORS

Notes : ∗ Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
∗ Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.

Numbering System For Resistors

Example:

ERD	25	F	J	102
Type	Wattage (1/4W)	Shape	Tolerance	Value (1KΩ)
ERX	2	AN	J	471
Type	Wattage (2W)	Shape	Tolerance	Value (470Ω)

Resistor Type	Wattage		Tolerance
ERD : Carbon	10 : 1/8W	12 : 1/2W	J : ±5%
ERG : Metal Oxide	14 : 1/4W	25 : 1/4W	F : ±1%
ERQ : Fuse Type Metal	1A : 1W	18 : 1/8W	G : ±2%
ERX : Metal Film	S2 : 1/4W	S1 : 1/2W	J : ±5%
ERD L : Carbon (chip)	2F : 1/4W	50 : 1/2W	K : ±10%
ERO K : Metal Film (chip)	2A : 2W	3A : 3W	M : ±20%
ERC : Solid	6G : 1/10W	8G : 1/8W	
ERF : Incombustible Box-Shaped			
ERM : Wire-Wound			
RRJ : Chip Resistor			
ERJ : Chip Resistor			

Numbering System For Capacitors

Example:

ECKD	1H	102	Z	F
Type	Voltage (50V)	Value (0.001μF)	Tolerance	Unique

ECEA	50	M	330
Type	Voltage (50V)	Characteristics	Value (33μF)

Capacitor Type	Voltage		Tolerance
ECE : Electrolytic	0J : 6.3V	1A : 10V	K : ±10%
ECCD : Ceramic	1C : 16V	1E : 25V	M : ±20%
ECKD : Ceramic Capacitor	1H : 50V	1V : 35V	Z : $^{+80}_{-20}$ %
ECQM : Polyester	50 : 50V	05 : 50V	J : ±5%
ECQP : Polypropylene	2H : 500V	2A : 100V	G : ±2%
ECG : Ceramic	1 : 100V	1J : 63V	F : ±1%
ECEA N : Non Polar Electrolytic	KC : 400V AC		C : ±0.25pF
QCU : Ceramic (Chip Type)	KC : 125V AC (UL)		D : ±0.5pF
ECUX : Ceramic (Chip Type)			
ECF : Semiconductor			
EECW : Liquid electrolyte double layer capacitor			

- ● Capacity values are in microfarads (μF) unless specified otherwise, P = Pico-farads (pF) F = Farads (F).
- ● Resistance values are in ohms (Ω), unless specified otherwise, 1K = 1,000Ω, 1M = 1,000kΩ

Ref. No.	Part No.	Value.
RESISTORS(VALUE,WATTAGE)		
R11	ERDS2TJ122	1.2K 1/4
R12	ERDS2TJ223	22K 1/4
R13	ERDS2TJ563	56K 1/4
R14	ERDS2TJ332	3.3K 1/4
R15	ERDS2TJ332	3.3K 1/4
R16	ERDS2TJ561	560 1/4
R17	ERDS2TJ152	1.5K 1/4
R18	ERDS2TJ103	10K 1/4
R19	ERG1ANJ560	56 1
R20	ERG1ANJ560	56 1
R21	ERD25FVJ5R6T	5.6 1/4
R22	ERDS2TJ1R0	1 1/4
R53	ERDS2TJ821	820 1/4
R54	ERDS2TJ222	2.2K 1/4
R55	ERDS2TJ391	390 1/4
R56	ERDS2TJ391	390 1/4
R57	ERDS2TJ103	10K 1/4
R58	ERDS2TJ103	10K 1/4
R101	ERDS2TJ472	4.7K 1/4
R102	ERDS2TJ222	2.2K 1/4
R103	ERDS2TJ222	2.2K 1/4
R104	ERDS2TJ332	3.3K 1/4
R105	ERDS2TJ222	2.2K 1/4
R106	ERDS2TJ472	4.7K 1/4
R107	ERDS2TJ472	4.7K 1/4
R108	ERDS2TJ105	1M 1/4
R109	ERDS2TJ332	3.3K 1/4
R110	ERDS2TJ331	330 1/4
R111	ERDS2TJ105	1M 1/4
R112	ERDS2TJ472	4.7K 1/4
R113	ERX2ANJ3R3	3.3 2
R114	ERDS2TJ122	1.2K 1/4
R115	ERDS2TJ472	4.7K 1/4
R116	ERDS2TJ182	1.8K 1/4
R117	ERDS2TJ472	4.7K 1/4
R118	ERDS2TJ472	4.7K 1/4
R119	ERDS2TJ472	4.7K 1/4
R120	ERDS2TJ332	3.3K 1/4
R121	ERDS2TJ105	1M 1/4
R122	ERDS2TJ105	1M 1/4
R123	ERDS2TJ103	10K 1/4
R124	ERDS2TJ561	560 1/4
R125	ERDS2TJ332	3.3K 1/4
R126	ERDS2TJ472	4.7K 1/4
R127	ERDS2TJ682	6.8K 1/4
R128	ERDS2TJ152	1.5K 1/4
R129	ERDS2TJ332	3.3K 1/4
R130	ERDS2TJ682	6.8K 1/4
R131	ERDS2TJ333	33K 1/4
R132	ERDS2TJ101	100 1/4
R133	ERDS2TJ473	47K 1/4
R134	ERDS2TJ563	56K 1/4
R135	ERDS2TJ102	1K 1/4
R136	ERDS2TJ471	470 1/4
R137	ERDS2TJ105	1M 1/4
R138	ERDS2TJ330	33 1/4
R139	ERDS2TJ472	4.7K 1/4
R140	ERDS2TJ561	560 1/4
R145	ERDS2TJ561	560 1/4
R146	ERDS2TJ102	1K 1/4
R147	ERDS2TJ103	10K 1/4
R170	ERDS2TJ103	10K 1/4
R171	ERDS2TJ332	3.3K 1/4
R172	ERDS2TJ332	3.3K 1/4
R173	ERDS2TJ222	2.2K 1/4
R174	ERDS2TJ101	100 1/4
R175	ERDS2TJ335T	3.3M 1/4
R176	ERDS2TJ105	1M 1/4
R177	ERDS2TJ105	1M 1/4
R178	ERDS2TJ472	4.7K 1/4
R179	ERDS2TJ471	470 1/4
R180	ERDS2TJ102	1K 1/4
R201	ERJ8GEYJ393V	39K 1/8
R202	ERJ8GEYJ222V	2.2K 1/8
R203	ERJ8GEYJ102V	1K 1/8
R204	ERJ8GEYJ392V	3.9K 1/8
R205	ERJ8GEYJ473V	47K 1/8
R206	ERJ8GEYJ153V	15K 1/8
R207	ERJ8GEYJ562V	5.6K 1/8
R208	ERJ8GEYJ563V	56K 1/8
R209	ERJ8GEYJ474V	470K 1/8
R210	ERJ8GEYJ563V	56K 1/8
R211	ERJ8GEYJ474V	470K 1/8
R212	ERJ8GEYJ222V	2.2K 1/8
R213	ERJ8GEYJ393V	39K 1/8
R214	ERJ8GEYJ223V	22K 1/8
R215	ERJ8GEYJ223V	22K 1/8
R216	ERJ8GEYJ123V	12K 1/8
R217	ERJ8GEYJ104V	100K 1/8
R218	ERJ8GEYJ104V	100K 1/8
R219	ERJ8GEYJ334V	330K 1/8
R220	ERJ8GEYJ562V	5.6K 1/8
R221	ERJ8GEYJ564V	560K 1/8
R222	ERJ8GEYJ682V	6.8K 1/8
R223	ERJ8GEYJ334V	330K 1/8
R224	ERJ8GEYJ273V	27K 1/8
R225	ERJ8GEYJ473V	47K 1/8
R233	ERJ8GEYJ223V	22K 1/8
R234	ERJ8GEYJ103V	10K 1/8
R235	ERJ8GEYJ103V	10K 1/8
R236	ERJ8GEYJ123V	12K 1/8
R237	ERJ8GEYJ271V	270 1/8
R238	ERJ8GEYJ223V	22K 1/8
R239	ERJ8GEYJ223V	22K 1/8
R240	ERJ8GEYJ123V	12K 1/8
R241	ERJ8GEYJ103V	10K 1/8
R242	ERJ8GEYJ103V	10K 1/8
R243	ERJ8GEYJ683V	68K 1/8
R246	ERJ8GEYJ222V	2.2K 1/8
R247	ERJ8GEYJ472V	4.7K 1/8
R248	ERJ8GEYJ563V	56K 1/8
R249	ERJ8GEYJ333V	33K 1/8
R250	ERJ8GEYJ183V	18K 1/8
R251	ERJ8GEYJ684V	680K 1/8
R254	ERJ8GEYJ222V	2.2K 1/8
R255	ERJ8GEYJ472V	4.7K 1/8
R256	ERJ8GEYJ473V	47K 1/8
R257	ERJ8GEYJ684V	680K 1/8
R258	ERJ8GEYJ393V	39K 1/8
R259	ERJ8GEYJ123V	12K 1/8
R260	ERJ8GEYJ473V	47K 1/8
R261	ERJ8GEYJ274V	270K 1/8
R262	ERJ8GEYJ330V	33 1/8
R263	ERJ8GEYJ330V	33 1/8

Ref. No.	Part No.	Value.
R264	ERJ8GEYJ330V	33 1/8
R266	ERJ8GEYJ680V	68 1/8
R267	ERJ8GEYJ101V	100 1/8
R269	ERJ8GEYJ562V	5.6K 1/8
R270	ERJ8GEYJ154V	150K 1/8
R271	ERJ8GEYJ330V	33 1/8
R272	ERJ8GEYJ330V	33 1/8
R273	ERJ8GEYJ330V	33 1/8
R274	ERJ8GEYJ222V	2.2K 1/8
R275	ERJ8GEYJ103V	10K 1/8
R276	ERJ8GEYJ103V	10K 1/8
R277	ERJ8GEYJ123V	12K 1/8
R278	ERJ8GEYJ271V	270 1/8
R279	ERJ8GEYJ151V	150 1/8
R283	ERJ8GEYJ391V	390 1/8
R284	ERJ8GEYJ333V	33K 1/8
R285	ERJ8GEYJ391V	390 1/8
R286	ERJ8GEYJ333V	33K 1/8
R287	ERX12ANJR47	0.47 1/2
R288	ERX12ANJR47	0.47 1/2
R292	ERJ8GEYJ154V	150K 1/8
R293	ERJ8GEYJ103V	10K 1/8
R294	ERJ8GEYJ153V	15K 1/8
R297	ERJ8GEYJ472V	4.7K 1/8
R298	ERJ8GEYJ271V	270 1/8
R299	ERJ8GEYJ472V	4.7K 1/8
R300	ERF8GEYJ681V	680 1/8
R301	ERJ8GEYJ271V	270 1/8
R304	ERJ8GEYJ100V	10 1/8
R305	ERJ8GEYJ102V	1K 1/8
R306	ERJ8GEYJ102V	1K 1/8
R307	ERJ8GEYJ102V	1K 1/8
R308	ERJ8GEYJ102V	1K 1/8
R309	ERJ8GEYJ102V	1K 1/8
R321	ERJ8GEYJ102V	1K 1/8
R322	ERJ8GEYJ102V	1K 1/8
R323	ERJ8GEYJ561V	560 1/8
R324	ERJ8GEYJ561V	560 1/8
R325	ERJ8GEYJ103V	10K 1/8
R326	ERJ8GEYJ472V	4.7K 1/8
R327	ERJ8GEYJ103V	10K 1/8
R328	ERJ8GEYJ102V	1K 1/8
R329	ERJ8GEYJ391V	390 1/8
R330	ERJ8GEYJ471V	470 1/8
R331	ERJ8GEYJ562V	5.6K 1/8
R332	ERJ8GEYJ472V	4.7K 1/8
R333	ERJ8GEYJ472V	4.7K 1/8
R334	ERJ8GEYJ471V	470 1/8
R335	ERJ8GEYJ221V	220 1/8
R336	ERJ8GEYJ391V	390 1/8
R337	ERJ8GEYJ102V	1K 1/8
R338	ERJ8GEYJ152V	1.5K 1/8
R339	ERJ8GEYJ102V	1K 1/8
R340	ERJ8GEYJ223V	22K 1/8
R341	ERJ8GEYJ122V	1.2K 1/8
R342	ERJ8GEYJ271V	270 1/8
R343	ERJ8GEYJ122V	1.2K 1/8
R344	ERJ8GEYJ391V	390 1/8
R345	ERJ8GEYJ101V	100 1/8
R346	ERJ8GEYJ331V	330 1/8
R349	ERJ8GEYJ271V	270 1/8
R351	ERJ8GEYJ100V	10 1/8
R352	ERJ8GEYJ100V	10 1/8
R353	ERJ8GEYJ272V	2.7K 1/8
R354	ERJ8GEYJ272V	2.7K 1/8
R355	ERJ8GEYJ182V	1.8K 1/8
R356	ERJ8GEYJ182V	1.8K 1/8
R357	ERJ8GEYJ392V	3.9K 1/8
R358	ERJ8GEYJ392V	3.9K 1/8
R361	ERJ8GEYJ822V	8.2K 1/8
R362	ERJ8GEYJ822V	8.2K 1/8
R363	ERJ8GEYJ332V	3.3K 1/8
R364	ERJ8GEYJ332V	3.3K 1/8
R365	ERJ8GEYJ102V	1K 1/8
R366	ERJ8GEYJ102V	1K 1/8
R367	ERJ8GEYJ271V	270 1/8
R368	ERJ8GEYJ271V	270 1/8
R369	ERF8GEYJ681V	680 1/8
R370	ERJ8GEYJ332V	3.3K 1/8
R371	ERJ8GEYJ332V	3.3K 1/8
R372	ERJ8GEYJ102V	1K 1/8
R373	ERJ8GEYJ102V	1K 1/8
R374	ERJ8GEYJ182V	1.8K 1/8
R375	ERJ8GEYJ332V	3.3K 1/8
R376	ERJ8GEYJ472V	4.7K 1/8
R377	ERJ8GEYJ472V	4.7K 1/8
R378	ERJ8GEYJ104V	100K 1/8
R379	ERJ8GEYJ473V	47K 1/8
R380	ERJ8GEYJ103V	10K 1/8
R381	ERJ8GEYJ152V	1.5K 1/8
R382	ERJ8GEYJ152V	1.5K 1/8
R383	ERJ8GEYJ151V	150 1/8
R384	ERJ8GEYJ151V	150 1/8
R405	ERDS2TJ473	47K 1/4
R406	ERDS2TJ473	47K 1/4
R407	ERDS2TJ123	12K 1/4
R408	ERDS2TJ123	12K 1/4
R409	FSR25TJ393T2	39K 2/5
R410	FSR25TJ393T2	39K 2/5
R417	ERD25FJ272	2.7K 1/4
R418	ERD25FJ272	2.7K 1/4
R419	FSR25TG332T2	3.3K 2/5
R420	FSR25TG332T2	3.3K 2/5
R421	FSR25TJ103T2	10K 2/5
R422	FSR25TJ103T2	10K 2/5
R423	FSR25TJ562T2	5.6K 2/5
R424	FSR25TJ562T2	5.6K 2/5
R425	FSR25TJ103T2	10K 2/5
R426	FSR25TJ103T2	10K 2/5
R427	ERDS2TJ101	100 1/4
R428	ERDS2TJ101	100 1/4
R429	ERDS2TJ473	47K 1/4
R430	ERDS2TJ473	47K 1/4
R431	FSR25TG100T2	10 2/5
R432	FSR25TG100T2	10 2/5
R433	FSR25TG330T2	33 2/5
R434	FSR25TG330T2	33 2/5
R435	FSR25TG102T2	1K 2/5
R436	FSR25TG102T2	1K 2/5
R437	FSR25TG332T2	3.3K 2/5
R438	FSR25TG332T2	3.3K 2/5
R439	ERD25TJ102	1K 1/4
R440	ERD25TJ102	1K 1/4
R441	ERDS2TJ104	100K 1/4
R442	ERDS2TJ104	100K 1/4
R443	ERDS2TJ224	220K 1/4
R444	ERDS2TJ224	220K 1/4
R445	ERDS2TJ103	10K 1/4
R446	ERDS2TJ103	10K 1/4
R447	ERDS2TJ103	10K 1/4
R448	ERDS2TJ103	10K 1/4
R449	ERDS2TJ103	10K 1/4
R450	ERDS2TJ103	10K 1/4
R451	ERDS2TJ331	330 1/4
R452	ERDS2TJ331	330 1/4
R453	ERDS2TJ103	10K 1/4
R454	ERDS2TJ103	10K 1/4
R457	ERDS2TJ105	1M 1/4
R458	ERDS2TJ105	1M 1/4
R461	ERDS2TJ681	680 1/4
R462	ERDS2TJ681	680 1/4
R463	ERDS2TJ681	680 1/4
R464	ERDS2TJ681	680 1/4
R465	ERDS2TJ681	680 1/4
R466	ERDS2TJ681	680 1/4
R467	ERDS2TJ681	680 1/4
R468	ERDS2TJ681	680 1/4
R469	ERDS2TJ681	680 1/4
R471	ERDS2TJ103	10K 1/4
R472	ERDS2TJ103	10K 1/4
R473	ERDS2TJ103	10K 1/4
R474	ERDS2TJ103	10K 1/4
R475	ERDS2TJ103	10K 1/4
R476	ERDS2TJ103	10K 1/4
R477	ERDS2TJ103	10K 1/4
R478	ERDS2TJ103	10K 1/4
R479	ERDS2TJ103	10K 1/4
R480	ERDS2TJ103	10K 1/4
R481	ERDS2TJ103	10K 1/4
R482	ERDS2TJ103	10K 1/4
R483	ERDS2TJ104	100K 1/4
R484	ERDS2TJ104	100K 1/4
R485	ERDS2TJ103	10K 1/4
R486	ERDS2TJ122	1.2K 1/4
R487	ERDS2TJ153	15K 1/4
R488	ERDS2TJ153	15K 1/4
R489	ERDS2TJ104	100K 1/4
R491	ERDS2TJ750	75 1/4
R492	ERDS2TJ473	47K 1/4
R493	ERDS2TJ334	330K 1/4
R494	ERDS2TJ154	150K 1/4
R495	ERDS2TJ473	47K 1/4
R500	ERDS2TJ102	1K 1/4
R501	FSR25TG100T2	10 2/5
R502	FSR25TG100T2	10 2/5
R505	FSR25TG330T2	33 2/5
R506	FSR25TG330T2	33 2/5
R509	FSR25TG102T2	1K 2/5
R510	FSR25TG102T2	1K 2/5
R513	FSR25TG332T2	3.3K 2/5
R514	FSR25TG332T2	3.3K 2/5
R517	FSR25TG472T2	4.7K 2/5
R518	FSR25TG472T2	4.7K 2/5
R519	FSR25TG472T2	4.7K 2/5
R520	FSR25TG472T2	4.7K 2/5
R521	ERDS2TJ103	10K 1/4
R522	ERDS2TJ103	10K 1/4
R523	ERDS2TJ682	6.8K 1/4
R524	ERDS2TJ682	6.8K 1/4
R525	FSR25TG472T2	4.7K 2/5
R526	FSR25TG472T2	4.7K 2/5
R527	FSR25TG332T2	3.3K 2/5
R528	ERD25FJ332	3.3K 1/4
R529	FSR25TJ152T2	1.5K 2/5
R530	FSR25TJ152T2	1.5K 2/5
R531	FSR25TG332T2	3.3K 2/5
R532	FSR25TG332T2	3.3K 2/5
R533	FSR25TG332T2	3.3K 2/5
R534	FSR25TG332T2	3.3K 2/5
R535	FSR25TJ152T2	1.5K 2/5
R536	FSR25TJ152T2	1.5K 2/5
R537	ERDS2TJ105	1M 1/4
R538	ERDS2TJ105	1M 1/4
R557	ERDS2TJ750	75 1/4
R563	ERDS2TJ102	1K 1/4
R564	ERDS2TJ102	1K 1/4
R565	ERDS2TJ102	1K 1/4
R566	ERDS2TJ102	1K 1/4
R567	ERDS2TJ333	33K 1/4
R568	ERDS2TJ333	33K 1/4
R569	ERDS2TJ154	150K 1/4
R570	ERDS2TJ154	150K 1/4
R571	ERDS2TJ184	180K 1/4
R572	ERDS2TJ184	180K 1/4
R573	ERDS2TJ681	680 1/4
R574	ERDS2TJ681	680 1/4
R575	ERDS2TJ681	680 1/4
R576	ERDS2TJ681	680 1/4
R577	FSR25TG332T2	3.3K 2/5
R578	FSR25TG332T2	3.3K 2/5
R579	FSR25TG332T2	3.3K 2/5
R580	FSR25TG332T2	3.3K 2/5
R601	ERDS2TJ103	10K 1/4
R602	ERDS2TJ102	1K 1/4
R603	ERDS2TJ103	10K 1/4
R604	ERDS2TJ271	270 1/4
R605	ERDS2TJ103	10K 1/4
R608	ERDS2TJ103	10K 1/4
R609	ERDS2TJ103	10K 1/4
R612	ERDS2TJ103	10K 1/4
R613	ERDS2TJ103	10K 1/4

Ref. No.	Part No.	Value.
R614	ERDS2TJ103	10K 1/4
R615	ERDS2TJ103	10K 1/4
R616	ERDS2TJ105	1M 1/4
R618	ERDS2TJ103	10K 1/4
R619	ERDS2TJ332	3.3K 1/4
R620	ERDS2TJ332	3.3K 1/4
R621	ERDS2TJ102	1K 1/4
R622	ERDS2TJ124	120K 1/4
R623	ERDS2TJ102	1K 1/4
R624	ERDS2TJ102	1K 1/4
R625	ERDS2TJ561	560 1/4
R626	ERDS2TJ391	390 1/4
R627	ERDS2TJ102	1K 1/4
R628	ERDS2TJ391	390 1/4
R629	ERDS2TJ470	47 1/4
R651	ERDS2TJ103	10K 1/4
R652	ERDS2TJ121	120 1/4
R653	ERDS2TJ121	120 1/4
R701	FSR25TG103T2	10K 2/5
R702	FSR25TG103T2	10K 2/5
R709	ERDS2TJ474	470K 1/4
R710	ERDS2TJ474	470K 1/4
R711	ERDS2TJ474	470K 1/4
R712	ERDS2TJ474	470K 1/4
R713	FSR25TJ333T2	33K 2/5
R714	FSR25TJ333T2	33K 2/5
R715	FSR25TJ333T2	33K 2/5
R716	FSR25TJ333T2	33K 2/5
R717	FSR25TG682T2	6.8K 2/5
R718	FSR25TG682T2	6.8K 2/5
R719	FSR25TG682T2	6.8K 2/5
R720	FSR25TG682T2	6.8K 2/5
R721	FSR25TG332T2	3.3K 2/5
R722	FSR25TG332T2	3.3K 2/5
R723	FSR25TG332T2	3.3K 2/5
R724	FSR25TG332T2	3.3K 2/5
R725	ERD25TJ102	1K 1/4
R726	ERD25TJ102	1K 1/4
R729	FSR25TG221T2	220 2/5
R730	FSR25TG221T2	220 2/5
R731	ERDS2TJ104	100K 1/4
R732	ERDS2TJ104	100K 1/4
R733	ERDS2TJ683	68K 1/4
R734	ERDS2TJ683	68K 1/4
R735	FSR25TG332T2	3.3K 2/5
R736	FSR25TG332T2	3.3K 2/5
R739	FSR25TG562T2	5.6K 2/5
R740	FSR25TG562T2	5.6K 2/5
R741	FSR25TG332T2	3.3K 2/5
R742	FSR25TG332T2	3.3K 2/5
R743	FSR25TG332T2	3.3K 2/5
R744	FSR25TG332T2	3.3K 2/5
R745	FSR25TG100T2	10 2/5
R746	FSR25TG100T2	10 2/5
R747	FSR25TG100T2	10 2/5
R748	FSR25TG100T2	10 2/5
R749	FSR25TG102T2	1K 2/5
R750	FSR25TG102T2	1K 2/5
R751	FSR25TG102T2	1K 2/5
R752	FSR25TG102T2	1K 2/5
R753	FSR25TG330T2	33 2/5
R754	FSR25TG330T2	33 2/5
R755	FSR25TG330T2	33 2/5
R756	FSR25TG330T2	33 2/5
R757	FSR25TG332T2	3.3K 2/5
R758	FSR25TG332T2	3.3K 2/5
R759	FSR25TG332T2	3.3K 2/5
R760	FSR25TG332T2	3.3K 2/5
R761	FSR25TG100T2	10 2/5
R762	FSR25TG100T2	10 2/5
R763	FSR25TG100T2	10 2/5
R764	FSR25TG100T2	10 2/5
R765	ERDS2TJ103	10K 1/4
R766	ERDS2TJ103	10K 1/4
R767	ERDS2TJ122	1.2K 1/4
R768	ERDS2TJ122	1.2K 1/4
R769	ERDS2TJ122	1.2K 1/4

Ref. No.	Part No.	Value.
R770	ERDS2TJ122	1.2K 1/4
R787	FSR25TG271T2	270 2/5
R788	FSR25TG271T2	270 2/5
R789	FSR25TG271T2	270 2/5
R790	FSR25TG271T2	270 2/5
R791	FSR25TG181T2	180 2/5
R792	FSR25TG181T2	180 2/5
R801	ERDS1FJ820	82 1/2
R802	ERDS1FJ820	82 1/2
R805	ERDS2TJ104	100K 1/4
R806	ERDS2TJ104	100K 1/4
R807	ERDS2TJ272	2.7K 1/4
R808	ERDS2TJ272	2.7K 1/4
R809	ERDS2TJ272	2.7K 1/4
R810	ERDS2TJ272	2.7K 1/4
R811	FSR25TG100T2	10 2/5
R812	FSR25TG100T2	10 2/5
R813	FSR25TG102T2	1K 2/5
R814	FSR25TG102T2	1K 2/5
R815	FSR25TG330T2	33 2/5
R816	FSR25TG330T2	33 2/5
R817	FSR25TG332T2	3.3K 2/5
R818	FSR25TG332T2	3.3K 2/5
R819	ERDS2TJ330	33 1/4
R820	ERDS2TJ330	33 1/4
CAPACITORS(VALUE,VOLTAGE)		
C1 ⚠	ECKWAE103ZV	0.01
C11	ECKF1H103ZF	0.01 50
C12	ECKF1H103ZF	0.01 50
C13	ECKF1H103ZF	0.01 50
C14	ECKF1H103ZF	0.01 50
C15	ECKF1H103ZF	0.01 50
C16	ECKF1H103ZF	0.01 50
C17	ECKF1H103ZF	0.01 50
C18	ECKF1H103ZF	0.01 50
C19	ECKF1H103ZF	0.01 50
C20	ECKF1H103ZF	0.01 50
C21	ECKD2H682PE	0.0068 500
C22	ECKF1H103ZF	0.01 50
C23	ECEA1APU103E	10000 10
C24	ECEA1APU103E	10000 10
C25	ECEA1CPS472E	4700 16
C26	ECEA1EPS332E	3300 25
C27	ECEA1EPS332E	3300 25
C28	ECEA1HS471	470 50
C29	ECEA1VU220B	22 35
C30	ECEA1AU220	22 10
C31	ECEA1HU4R7	4.7 50
C32	ECEA0JU470	47 6.3
C33	ECEA0JU470	47 6.3
C34	ECEA0JU470	47 6.3
C35	EECF5R5U105	1 5.5
C37	ECES1EU223UY	22000 25
C38	ECES1EU223UY	22000 25
C39	ECEA1CU470	47 16
C40	ECEA1AU470	47 10
C41	ECEA1AU470	47 10
C42	ECEA1CU470	47 16
C43	ECEA1AU470	47 10
C51	ECEA1CU221	220 16
C52	ECEA1CU221	220 16
C53	ECEA1CU470	47 16
C54	ECEA1CU470	47 16
C55	ECEA1HN3R3S	3.3 50
C56	ECEA1ESN3R3B	3.3 25
C57	ECEA1CU221	220 16
C58	ECEA1CU221	220 16
C61	ECKF1H103ZF	0.01 50
C62	ECKF1H103ZF	0.01 50
C63	ECEA1AS222	2200 10
C101	ECEA1AS330	33 10
C102	ECEA0JS221	220 6.3
C103	ECEA0JS221	220 6.3
C104	ECKF1H103ZF	0.01 50
C105	ECKF1H103ZF	0.01 50
C106	ECKF1H103ZF	0.01 50

Ref. No.	Part No.	Value.
C107	ECKF1H103ZF	0.01 50
C108	ECKF1H103ZF	0.01 50
C109	ECKF1H103ZF	0.01 50
C110	ECKF1H103ZF	0.01 50
C111	ECQM1H104JZP	0.1 50
C112	ECEA1AS330	33 10
C113	ECEA1CN100S	10 16
C114	ECEA1CN100S	10 16
C115	ECQV1H334JZ	0.33 50
C116	ECEA0JU220B	22 6.3
C117	ECCR1H180JC5	18P 50
C118	ECCR1H180JC5	18P 50
C119	ECCR1H220JC5	22P 50
C120	ECCR1H220JC5	22P 50
C121	ECCR1H390JC5	39P 50
C122	ECKF1H103ZF	0.01 50
C123	ECKF1H103ZF	0.01 50
C124	ECQV1H334JZ	0.33 50
C125	ECQV1H224JZ	0.22 50
C126	ECKF1H103ZF	0.01 50
C127	ECQM1H104JZP	0.1 50
C128	ECKF1H103ZF	0.01 50
C129	ECCR1H101JC5	100P 50
C130	ECCR1H390JC5	39P 50
C131	ECCR1H220JC5	22P 50
C132	ECCD1H680KC	68P 50
C133	ECKF1H103ZF	0.01 50
C134	ECKF1H103ZF	0.01 50
C137	ECCD1H151K	150P 50
C138	ECCD1H560K	56P 50
C139	ECCD1H560K	56P 50
C150	ECKF1H103ZF	0.01 50
C151	ECKF1H103ZF	0.01 50
C152	ECKF1H103ZF	0.01 50
C153	ECKF1H103ZF	0.01 50
C154	ECKF1H103ZF	0.01 50
C155	ECKF1H103ZF	0.01 50
C156	ECKF1H103ZF	0.01 50
C157	ECKF1H103ZF	0.01 50
C158	ECKF1H103ZF	0.01 50
C159	ECKF1H103ZF	0.01 50
C160	ECKF1H103ZF	0.01 50
C161	ECKF1H103ZF	0.01 50
C162	ECKF1H103ZF	0.01 50
C163	ECKF1H103ZF	0.01 50
C164	ECKF1H103ZF	0.01 50
C165	ECKF1H103ZF	0.01 50
C166	ECKF1H103ZF	0.01 50
C167	ECKF1H103ZF	0.01 50
C168	ECKF1H103ZF	0.01 50
C170	ECEA1CU101	100 16
C171	ECEA0JU220B	22 6.3
C172	ECKF1H103ZF	0.01 50
C173	ECKF1H103ZF	0.01 50
C174	ECKF1H103ZF	0.01 50
C175	ECKF1H103ZF	0.01 50
C176	ECKF1H103ZF	0.01 50
C177	ECKF1H103ZF	0.01 50
C178	ECKF1H103ZF	0.01 50
C179	ECKF1H103ZF	0.01 50
C180	ECQV1H683JZ3	0.068 50
C181	ECKD1H471KB	470P 50
C182	ECCR1H330KU5	33P 50
C183	ECKD1H221KB	220P 50
C190	ECCD1H820K	82P 50
C191	ECCD1H680K	68P 50
C192	ECCD1H121K	120P 50
C193	ECEB1CU100S	10 16
C202	RCUV1H560KC	56P 50
C203	ECEV1HN010R	1 50
C204	RCUV1H561KB	560P 50
C205	ECWV1E683JA9	0.068 25
C206	RCUV1E103MD	0.01 25
C207	RCUV1H682MD	0.0068 50
C208	RCUV1H682MD	0.0068 50
C209	ECEV0JA101P	100 6.3
C210	ECEV0JA101P	100 6.3

Ref. No.	Part No.	Value.
C211	ECUV1E683MD	0.068 25
C212	RCUV1H181K	180P 50
C213	ECEV1EN2R2R	2.2 25
C215	ECUV1E104ZF	0.1 25
C216	ECEV1HN010R	1 50
C217	ECEV0JA220R	22 6.3
C218	RCUV1H471KB	470P 50
C219	ECEV1HN010R	1 50
C220	ECEV0JA220R	22 6.3
C221	RCUV1H471KB	470P 50
C222	ECEV1HN010R	1 50
C223	RCUV1H561KB	560P 50
C224	ECEV1EN3R3R	3.3 25
C225	RCUV1H560KC	56P 50
C226	RCUV1H271K	270P 50
C227	RCUV1E103MD	0.01 25
C228	ECUV1E104ZF	0.1 25
C229	RCUV1H331KC	330P 50
C230	ECEV1EN3R3R	3.3 25
C231	ECEV1EN3R3R	3.3 25
C232	ECUV1E104ZF	0.1 25
C233	ECEV1CA100R	10 16
C234	ECUV1E104ZF	0.1 25
C235	ECEV1HVR33R	0.33 50
C236	RCUV1E103MD	0.01 25
C237	ECUV1E104ZF	0.1 25
C238	ECUV1E683MD	0.068 25
C239	RCUV1E103MD	0.01 25
C240	ECEV1EN220P	22 25
C241	ECUV1E224ZF	0.22 25
C242	ECUV1E104ZF	0.1 25
C243	RCUV1E103MD	0.01 25
C244	ECUV1E104ZF	0.1 25
C245	ECUV1E104ZF	0.1 25
C246	ECEV1EN2R2R	2.2 25
C247	RCUV1E103MD	0.01 25
C248	ECEV1EN2R2R	2.2 25
C249	ECEV1EN2R2R	2.2 25
C250	ECEV1EN2R2R	2.2 25
C251	ECUV1E104ZF	0.1 25
C252	ECUV1E333MD	0.033 25
C253	ECUV1E333MD	0.033 25
C254	ECUV1E333MD	0.033 25
C255	ECUV1E104ZF	0.1 25
C256	ECUV1E104ZF	0.1 25
C257	ECEV1CA100R	10 16
C258	RCUV1E103MD	0.01 25
C261	ECEV1EN2R2R	2.2 25
C262	ECEV1EN2R2R	2.2 25
C263	ECEV1EN2R2R	2.2 25
C264	ECUV1E333MD	0.033 25
C265	ECUV1E333MD	0.033 25
C266	ECUV1E333MD	0.033 25
C267	ECUV1E333MD	0.033 25
C268	ECUV1E104ZF	0.1 25
C269	RCUV1E103MD	0.01 25
C270	ECUV1E104ZF	0.1 25
C271	RCUV1H271K	270P 50
C274	ECEV1CA470P	47 16
C275	ECEV1AA330P	33 10
C276	ECEV1AA330P	33 10
C277	ECEV1EN3R3R	3.3 25
C278	ECUV1E104ZF	0.1 25
C281	ECEV0JA220R	22 6.3
C282	ECEV0JA220R	22 6.3
C284	ECEV1HN010R	1 50
C289	ECUV1E224ZF	0.22 25
C290	ECUV1E224ZF	0.22 25
C291	ECUV1E104ZF	0.1 25
C301	RCUV1E103MD	0.01 25
C321	ECUV1E104ZF	0.1 25
C322	RCUV1E103MD	0.01 25
C323	ECEV1CA100R	10 16
C324	ECUV1E104ZF	0.1 25
C325	RCUV1H472MD	0.0047 50
C326	ECUV1E473MD	0.047 25
C327	RCUV1E103MD	0.01 25
C328	ECEV1CA100R	10 16
C329	ECUV1E104ZF	0.1 25
C330	ECUV1E104ZF	0.1 25
C331	RCUV1H680KC	68P 50
C332	ECUV1E104ZF	0.1 25

Ref. No.	Part No.	Value.
C333	RCUV1E103MD	0.01 25
C334	RCUV1E103MD	0.01 25
C335	ECEV1CA470P	47 16
C336	ECEV0JA101P	100 6.3
C337	ECEV1CA100R	10 16
C338	ECUV1E104ZF	0.1 25
C339	ECEV1CA470P	47 16
C340	RCUV1H390KC	39P 50
C351	RCUV1H682MD	0.0068 50
C352	RCUV1H682MD	0.0068 50
C353	ECUV1E104ZF	0.1 25
C354	ECEV0GA470R	47 4
C355	ECEV0GA470R	47 4
C356	RCUV1H222MD	0.0022 50
C357	ECEV1CA100R	10 16
C358	ECUV1E104ZF	0.1 25
C359	ECEV1HA010R	1 50
C360	ECUV1E104ZF	0.1 25
C361	ECEV1HA010R	1 50
C362	RCUV1E103MD	0.01 25
C363	ECEV1CA100R	10 16
C364	ECEV1CA100R	10 16
C365	ECEV1CA100R	10 16
C366	RCUV1E103MD	0.01 25
C367	RCUV1E103MD	0.01 25
C368	RCUV1E103MD	0.01 25
C369	RCUV1E103MD	0.01 25
C370	RCUV1H681KB	680P 50
C371	RCUV1H681KB	680P 50
C372	RCUV1H102KB	0.001 50
C373	RCUV1H102KB	0.001 50
C374	ECUV1E104ZF	0.1 25
C375	RCUV1H390KC	39P 50
C403	ECQP2A102JSF	0.001 100
C404	ECQP2A102JSF	0.001 100
C405	ECQB1H103JZ	0.01 50
C406	ECQB1H103JZ	0.01 50
C407	ECCC1H221K	220P 50
C408	ECCC1H221K	220P 50
C409	ECEA1HU3R3	3.3 50
C410	ECEA1HU3R3	3.3 50
C411	ECEA1HU3R3	3.3 50
C412	ECEA1HU3R3	3.3 50
C415	ECEA1HU3R3	3.3 50
C416	ECEA1HU3R3	3.3 50
C417	ECKF1H103ZF	0.01 50
C418	ECKF1H103ZF	0.01 50
C419	ECKF1H103ZF	0.01 50
C420	ECCD1H151K	150P 50
C421	REC1C470M0T	47 16
C422	REC1C470M0T	47 16
C423	REC1C470M0T	47 16
C424	REC1C470M0T	47 16
C425	ECKF1H103ZF	0.01 50
C426	ECKF1H103ZF	0.01 50
C427	ECKF1H103ZF	0.01 50
C428	ECKF1H103ZF	0.01 50
C429	ECEA0JU101	100 6.3
C430	ECEA0JU101	100 6.3
C431	REC1C470M0T	47 16
C432	REC1C470M0T	47 16
C433	REC1A101M0T	100 10
C434	REC1A101M0T	100 10
C435	ECKF1H103ZF	0.01 50
C436	ECKF1H103ZF	0.01 50
C437	ECKF1H103ZF	0.01 50
C438	ECKF1H103ZF	0.01 50
C439	ECKF1H103ZF	0.01 50
C440	ECKF1H103ZF	0.01 50
C441	ARA1CN220M0T	22 16
C442	ARA1CN220M0T	22 16
C443	ARA1CN101M0E	100 16
C444	ARA1CN101M0E	100 16
C445	ECCD1H220K	22P 50
C446	ECCD1H220K	22P 50
C447	ECCD1H220K	22P 50
C448	ECCD1H220K	22P 50
C449	ECKD1H102KB	1000P 50
C450	ECKF1H103ZF	0.01 50
C451	ECKF1H103ZF	0.01 50
C500	ECKD1H102KB	1000P 50
C501	ECQP2A271JSF	270P 100

Ref. No.	Part No.	Value.
C502	ECQP2A271JSF	270P 100
C505	ECQP2A103JSF	0.01 100
C506	ECQP2A103JSF	0.01 100
C511	REC1A101M0T	100 10
C512	REC1A101M0T	100 10
C513	ECKF1H103ZF	0.01 50
C514	ECKF1H103ZF	0.01 50
C515	ECKF1H103ZF	0.01 50
C516	ECKF1H103ZF	0.01 50
C517	ECKF1H103ZF	0.01 50
C518	ECKF1H103ZF	0.01 50
C519	REC1C470M0T	47 16
C520	REC1C470M0T	47 16
C521	REC1C470M0T	47 16
C522	REC1C470M0T	47 16
C525	ECEA0JU101	100 6.3
C526	ECKF1H103ZF	0.01 50
C531	ECKF1H103ZF	0.01 50
C532	ECKF1H103ZF	0.01 50
C533	REC1C221M0E	220 16
C534	REC1C221M0E	220 16
C535	ECEA1CU100	10 16
C536	ECEA1CU100	10 16
C537	ECCC1H221K	220P 50
C538	ECCC1H221K	220P 50
C539	ECKF1H103ZF	0.01 50
C540	ECKF1H103ZF	0.01 50
C541	ECKF1H103ZF	0.01 50
C542	ECKF1H103ZF	0.01 50
C543	REC0J221M0T	220 6.3
C544	REC0J221M0T	220 6.3
C545	ECCD1H470K	47P 50
C546	ECKF1H103ZF	0.01 50
C547	ECQM1H104JZP	0.1 50
C548	ECCC1H221K	220P 50
C550	ECEA0JU330	33 6.3
C552	ECEA0JU101	100 6.3
C553	ECKD1H473ZF	0.047 50
C601	RCBS1H181KBY	180P 50
C602	ECEA0JKS470	47 6.3
C603	ECEA0JKS220B	22 6.3
C604	ECBT1E103ZF	0.01 25
C605	ECEA0JKS470	47 6.3
C607	ECEA1EKS4R7	4.7 25
C608	ECBA1E103ZF5	0.01 25
C609	ECBT1E103ZF	0.01 25
C610	ECEA1HKS010	1 50
C641	ECKF1H103ZF	0.01 50
C642	ECKF1H103ZF	0.01 50
C643	ECKF1H103ZF	0.01 50
C644	ECKF1H103ZF	0.01 50
C645	ECKF1H103ZF	0.01 50
C646	ECKF1H103ZF	0.01 50
C647	ECKF1H103ZF	0.01 50
C648	ECKF1H103ZF	0.01 50
C651	ECKF1H103ZF	0.01 50
C657	ECKF1H103ZF	0.01 50
C658	ECKF1H103ZF	0.01 50
C701	ARA1CN101M0E	100 16
C702	ARA1CN101M0E	100 16
C711	ECQB1H122JZ3	0.0012 50
C712	ECQB1H122JZ3	0.0012 50
C713	RBP1CN221M0E	220 16
C714	RBP1CN221M0E	220 16
C715	RBP1CN221M0E	220 16
C716	RBP1CN221M0E	220 16
C721	REC1C470M0T	47 16
C722	REC1C470M0T	47 16
C723	REC1C470M0T	47 16
C724	REC1C470M0T	47 16
C741	REC1C221M0E	220 16
C742	REC1C221M0E	220 16
C801	ECEA1CU471	470 16
C802	ECEA1CU471	470 16
C803	ARA1CN220M0T	22 16
C804	ARA1CN220M0T	22 16
C805	ECKF1H103ZF	0.01 50
C806	ECKF1H103ZF	0.01 50
C807	ECKF1H103ZF	0.01 50
C810	ECKF1H103ZF	0.01 50

■ REPLACEMENT PARTS LIST

Notes : ∗ Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
∗ Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.
∗ Remote Control Ass'y:
Supply period for three years from termination of production.

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC11	M5F78M05L	I.C. REGULATOR
IC12	M5F7805L	I.C.. REGULATOR
IC13	M5F78M05L	I.C. REGULATOR
IC14	M5F78M12L	I.C. REGULATOR
IC15	M5F7812L	I.C. REGULATOR
IC51	AN6914	I.C. COMPARATOR
IC101	SAQ0001-2	I.C. DSP
IC102	SAQ0002-1	I.C. DEM
IC103	SAQ0003-1	I.C. ECC
IC104	MN52080SDH	I.C. MAIN SERVO
IC105	MN53020SDF	I.C. IFGA
IC106	MN18982SDJ2	I.C.. SBP
IC107	MN188322SDK3	I.C.. SYSTEM CONTROL
IC108	MB8464AL10SK	I.C. 64K SRAM
IC109	MB8464AL10SK	I.C. 64K SRAM
IC110	MB8416AL12SK	I.C. 16K SRAM
IC111	CD74HC4046A	I.C. DF PLL
IC112	MN74HCU04S	I.C. LOGIC CONTROL
IC113	MN74HC14S	I.C. LOGIC CONTROL
IC114	MN74HC132S	I.C. LOGIC CONTROL
IC115	MN74HC157S	I.C. LOGIC CONTROL
IC116	MN74HC00S	I.C. LOGIC CONTROL
IC117	MN74HC74S	I.C. LOGIC CONTROL
IC118	M5234FP	I.C. DEW DETECTION
IC119	BA6247	I.C. MOTOR DRIVE
IC120	AN8005	I.C. REGLATOR
IC121	MN1280-R	I.C. REGLATOR
IC122	MN74HC00S	I.C. LOGIC CONTROL
IC123	MN74HC02S	I.C. LOGIC CONTROL
IC170	AN78N05	I.C. REGLATOR
IC171	SLYEDL080	I.C. LOGIC CONTROL
IC172	MN74HC04S	I.C. LOGIC CONTROL
IC173	MN74HC86S	I.C. LOGIC CONTROL
IC174	MN74HC4066S	I.C. LOGIC CONTROL
IC175	MN74HC74S	I.C. LOGIC CONTROL
IC176	TLC271CPS	I.C. COMPARATOR
IC177	SN74LS62NS	I.C. LOGIC CONTROL
IC201	AN8320NF	I.C. SUB SERVO
IC202	AN4558S	I.C. COMPARATOR
IC203	MN4053BS	I.C. ANALOG SWITCH
IC204	MN4053BS	I.C. ANALOG SWITCH
IC205	UPD4066BG	I.C. ANALOG SWITCH
IC206	AN4558S	I.C. CAPSTAN SERVO
IC207	AN4558S	I.C. CYLINDER SERVO
IC208	BA6431F	I.C. CAPSTAN MOTOR DRIVE
IC209	TC4S69FTX	I.C. LOGIC CONTROL
IC210	BA6431F	I.C. MOTOR DRIVE
IC211	AN4558S	I.C. CYLINDER PG
IC212	AN8005	I.C. REGULATOR
IC213	MN74HC367S	I.C. INTERFACE
IC321	AN7021S	I.C. ENVELOPE DETECTION
IC322	AN8005	I.C. REGULATOR
IC323	AN8005	I.C. REGULATOR
IC324	NJM319M	I.C. RF DETECTION
IC351	AN7030S	I.C. RF AMP
IC352	AN78L09	I.C. REGULATOR
IC353	AN78L05	I.C. REGULATOR
IC401	NJM5532MT	I.C. OPERATION AMP
IC402	NJM5532MT	I.C. OPERATION AMP
IC403	SVHHAF0613	I.C. L.P.F
IC404	SVHHAF0613	I.C. L.P.F
IC407	M5238FPT2	I.C.. OPERATION AMP
IC408	M5238FPT2	I.C.. OPERATION AMP
IC409	UPD4053BGT	I.C. SAMPLE HOLD
IC410	UPD4053BGT	I.C. SAMPLE HOLD
IC411	PCM78P-J	I.C. A/D CONVERTER
IC412	PCM78P-J	I.C. A/D CONVERTER
IC413	M5238FPT2	I.C.. OPERATION AMP
IC414	M5238FPT2	I.C.. OPERATION AMP
IC415	M5218FPT2	I.C.. OPERATION AMP
IC416	M5218FPT2	I.C.. OPERATION AMP
IC417	MN74HC74S	I.C. LOGIC CONTROL
IC418	MN74HC74S	I.C. LOGIC CONTROL
IC419	MN74HC125S	I.C. LOGIC CONTROL
IC420	MN74HC125S	I.C. LOGOC CONTROL
IC421	MN74HC175S	I.C. LOGIC CONTROL
IC422	MN74HC08S	I.C. LOGIC CONTROL
IC423	MN74HC04S	I.C. LOGIC CONTROL
IC424	TC74HC193F	I.C. CLOCK
IC425	TC74HC123F	I.C. LOGIC CONTROL
IC426	SM5805P	I.C. DIGITAL FILTER
IC428	M74HC6004P	I.C. LOGIC CONTROL
IC431	AN6914S	I.C. OPERATION AMP
IC501	YM3404B	I.C. DIGITAL FILTER
IC502	MN53010PEH	I.C. SERIAL/PALALLEL
IC503	PCM56P-J	I.C. D/A CONVERTER
IC504	PCM56P-J	I.C. D/A CONVERTER
IC505	PCM56P-J	I.C. D/A CONVERTER
IC506	PCM56P-J	I.C. D/A CONVERTER
IC507	UPD4053BGT	I.C. SAMPLE HOLD
IC508	UPD4053BGT	I.C. SAMPLE HOLD
IC509	M5238FPT2	I.C.. OPERATION AMP
IC510	M5238FPT2	I.C.. OPERATION AMP
IC511	NJM5532MT	I.C. OPERATION AMP
IC512	NJM5532MT	I.C. OPERATION AMP
IC513	SVHHAF0614	I.C. L.P.F
IC514	SVHHAF0614	I.C. L.P.F
IC521	M5F78M12L	I.C. REGULATOR
IC522	M5F79M12L	I.C. REGULATOR
IC523	M5F78M05L	I.C. REGULATOR
IC524	M5F79M05L	I.C. REGULATOR
IC525	M5218FPT2	I.C.. REGULATOR
IC526	M5F78M05L	I.C. REGULATOR
IC601	MN4049BS	I.C. LOGIC CONTROL
IC602	AN6873S	I.C. LOGIC CONTROL
IC603	M50754-430FP	I.C. PANEL CONTROL
IC651	SVITLP552	I.C. PHOTO INTERRUPTER
IC701	NJM5532DD	I.C. BUFFER AMP.
IC702	NJM5532DD	I.C. BUFFER AMP.
IC703	NJM5532DD	I.C. BUFFER AMP.
IC704	NJM5532DD	I.C. BUFFER AMP.
IC705	NJM5532DD	I.C. BUFFER AMP.
IC706	NJM5532DD	I.C. BUFFER AMP.
IC707	NJM4560D	I.C.. OPERATION AMP
IC708	NJM4560D	I.C.. OPERATION AMP
IC801	M5218P	I.C. OPERATION AMP
IC802	M5218P	I.C. OPERATION AMP
IC803	M5218P	I.C. OPERATION AMP
TRANSISTORS		
Q11	2SD1273-Q	TRANSISTOR
Q12	2SB941-P	TRANSISTOR
Q13	2SC3311A-Q	TRANSISTOR
Q51	2SB895QR	TRANSISTOR
Q52	2SB895QR	TRANSISTOR
Q101	2SD1424RSTTA	TRANSISTOR
Q102	2SD1424RSTTA	TRANSISTOR
Q103	2SC3315DTA	TRANSISTOR
Q104	2SD893ARSTA	TRANSISTOR
Q105	2SC3311A-Q	TRANSISTOR
Q106	UN4211	TRANSISTOR
Q321	2SC2404CTW	TRANSISTOR
Q322	2SB709RTW	TRANSISTOR
Q323	2SC2404CTW	TRANSISTOR
Q351	2SD1328STW	TRANSISTOR
Q352	2SD1328STW	TRANSISTOR
Q353	2SC3937TW	TRANSISTOR
Q354	2SC3937TW	TRANSISTOR
Q355	2SD1328STW	TRANSISTOR
Q356	2SD1328STW	TRANSISTOR
Q357	2SD1328STW	TRANSISTOR
Q358	2SD1328STW	TRANSISTOR
Q359	2SD1328STW	TRANSISTOR
Q501	UN4111	TRANSISTOR
Q502	UN4111	TRANSISTOR
Q503	UN4111	TRANSISTOR
Q601	2SC3311A-Q	TRANSISTOR
Q602	2SD1424RSTTA	TRANSISTOR
Q603	UN4111	TRANSISTOR
Q604	UN4111	TRANSISTOR
Q605	UN4111	TRANSISTOR
Q606	UN4111	TRANSISTOR
Q607	UN4111	TRANSISTOR
Q608	UN4111	TRANSISTOR
Q651	UN4114	TRANSISTOR
Q652	UN4114	TRANSISTOR
Q653	UN4114	TRANSISTOR
Q654	UN4114	TRANSISTOR
Q655	UN4114	TRANSISTOR
Q656	UN4114	TRANSISTOR
Q657	UN4114	TRANSISTOR
Q658	UN4114	TRANSISTOR
DIODES		
D11 ⚠	SVDS4VB20	RECTIFIER
D12 ⚠	SVD1SR35200A	DIODE
D13 ⚠	SVD1SR35200A	DIODE
D14 ⚠	SVD1SR35200A	DIODE
D15 ⚠	SVD1SR35200A	DIODE
D16 ⚠	SVDS2V20	RECTIFIER
D17 ⚠	SVDS2V20	RECTIFIER
D18 ⚠	SVD1SR35200A	DIODE
D19	MA167	DIODE
D20	MA165	DIODE
D21	MA4270	DIODE
D22	MA2082	DIODE, SI
D23	MA165	DIODE
D24	MA165	DIODE
D25	MA4082	DIODE
D51	MA701	DIODE, SI
D52	MA701	DIODE, SI
D61 ⚠	SVD1SR35200A	DIODE
D62 ⚠	SVD1SR35200A	DIODE
D101	FC52M	DIODE
D102	MA165	DIODE
D170	MA165	DIODE
D171	MA165	DIODE
D201	MA704TX	DIODE
D202	MA704TX	DIODE
D204	MA151KTW	DIODE
D205	MA151KTW	DIODE
D206	MA151KTW	DIODE
D207	MA151KTW	DIODE
D208	MA151KTW	DIODE
D209	MA151KTW	DIODE
D210	MA3082MTW	DIODE, SI
D321	MA151KTW	DIODE
D351	MA151KTW	DIODE
D401	MA165	DIODE
D402	MA165	DIODE
D403	MA165	DIODE
D404	MA165	DIODE
D405	MA165	DIODE
D406	MA165	DIODE
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D601	MA165	DIODE
D604	MA165	DIODE
D605	SVDMC911	DIODE
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D615	MC911-28	DIODE
D616	MC911-28	DIODE
D617	SVDMC911	DIODE
D618	MA165	DIODE
D619	SVDMC911	DIODE
D620	MA165	DIODE
D621	MA165	DIODE
D622	SVDMC911	DIODE
D623	SVDMC911	DIODE
D624	SVDMC911	DIODE
D625	MA165	DIODE
D626	SVGAY2202SB1	L.E.D
D627	SVGBR2222SB1	DIODE, SI
D628	SVGPY2222SB1	L.E.D
D629	LN0202RP2	DIODE, GAASP
D630	LN0202RP2	DIODE, GAASP
D631	LN0202YP4	DIODE, GAASP
D632	MA165	DIODE
D633	MA165	DIODE
D634	MA165	DIODE
D636	MA165	DIODE
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D664	MA4082	DIODE
D665	MA4082	DIODE
D666	MA4082	DIODE
D667	MA4082	DIODE
D668	MA4082	DIODE
VARIABLE RESISTORS		
VR201	EVM13SX00B54	V.R. PG PHASE ADJ.
VR202	EVM13SX00B25	V.R. TAPE ADJ.
VR203	EVM13SX00B25	V.R. TAPE ADJ.
VR321	EVM13SX00B13	V.R. ATF GAIN ADJ.
VR351	EVM13SX00B53	V.R. RF REC LEVEL ADJ.
VR352	EVM13SX00B53	V.R. RF REC LEVEL ADJ.
VR353	EVM13SX00B53	V.R. RF REC LEVEL ADJ.
VR354	EVM13SX00B53	V.R. EQUIVALENT CIRCUIT
VR355	EVM13SX00B53	V.R. EQUIVALENT CIRCUIT
VR356	EVM13SX00B53	V.R. EQUIVALENT CIRCUIT
VR401	EVND4AA00B15	V.R. ADC OFFSET ADJ.
VR402	EVND4AA00B15	V.R. ADC OFFSET ADJ.
VR403	EVND4AA00B15	V.R. ADC MSB ADJ.
VR404	EVND4AA00B15	V.R. ADC MSB ADJ.
VR501	EVND4AA00B53	V.R. DAC OUTPUT BALANCE
VR502	EVND4AA00B53	V.R. DAC OUTPUT BALANCE
VR503	EVND4AA00B15	V.R. DAC OFFSET ADJ.
VR504	EVND4AA00B15	V.R. DAC OFFSET ADJ.
VR651	EWC2XAF20703	V.R. RECORDING LEVEL
VR652	EWK77A029A24	V.R. RECORDING BALANCE
VR801	EVUN1A022A14	V.R. HEAD PHONES LEVEL
VARIABLE CAPACITORS		
CT101	ECRHB060G31	TRIMMER CAPACITOR
CT170	ECRHA040E11	TRIMMER CAPACITOR
COILS AND TRANSFORMERS		
L1	SLQX400-D	COIL
L2	SLQX400-D	COIL

Ref. No.	Part No.	Description
L50	SLQZ470-5D	CHOKE COIL
L51	SLQZ471-9D	COIL
L52	SLQZ681-7D	COIL
L201	RLQZQ101KTWA	COIL
L501	SLZS10VN17-1	PULSE TRANSFORMER
L801	RLQZB6R8KT-D	COIL
L802	RLQZB6R8KT-D	COIL
L803	RLQZB6R8KT-D	COIL
T1 ⚠	SLT5M523	POWER TRANSFORMER
COMPONENT COMBINATIONS		
X101	SVQ49U123-D	OSCILLATOR
X102	SVQ49U113-D	CRYSTAL OSCILLATOR
X103	SVQLT283-F	COMBINATION PART
Z101	SVH24M576-2	I.C, DIN PLL
Z102	EXBP84103J	COMBINATION PART
Z103	EXBP84332J	COMBINATION PART
Z104	EXBP88103J	COMBINATION PART
Z105	SRG07BF001J	COMBINATION PART
Z106	EXCEMT103C	COMBINATION PART
Z107	EXBP84103J	COMBINATION PART
Z321	RXA50L6R001L	COMBINATION PART
Z322	RLM9A4T-T	COMBINATION PART
Z323	RLM9A3T-T	COMBINATION PART
Z351	RSASDL4047-D	COMBINATION PART
Z403	EXCEMT471C	COMBINATION PART
Z601	EXCEMT103C	COMBINATION PART
Z602	EXCEMT103C	COMBINATION PART
Z651	EXBP88103J	COMBINATION PART
Z701	EXCEMT471C	COMBINATION PART
Z702	EXCEMT471C	COMBINATION PART
Z703	EXCEMT471C	COMBINATION PART
Z704	EXCEMT471C	COMBINATION PART
Z705	EXCEMT471C	COMBINATION PART
Z706	EXCEMT471C	COMBINATION PART
Z707	EXCEMT471C	COMBINATION PART
Z708	EXCEMT471C	COMBINATION PART
DISPLAYS		
FL601	SADBG512GK	DISPLAY TUBE
LAMPS		
PL1	XAMS1S250B	PILOT LAMP
FUSES		
F1 ⚠	XBA2C03TB0S	FUSE
F2 ⚠	XBA2C05TB0S	FUSE
SWITCHES		
S1 ⚠	ESB8216V	SW, POWER

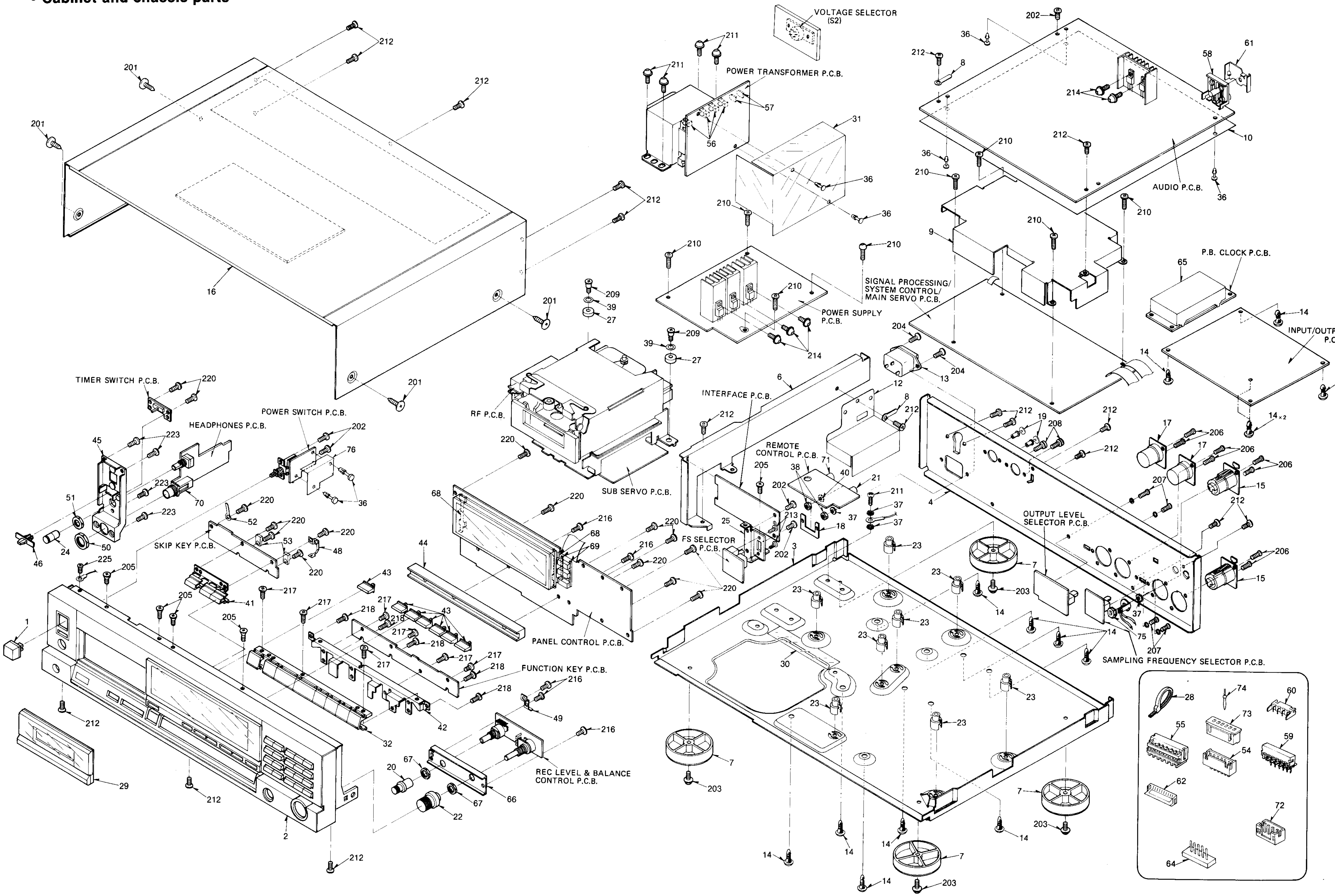
Ref. No.	Part No.	Description
S2 ⚠	ESE37263	SW, VOLTAGE SELECTOR
S601	EVQQS705G	SW, PROGRAM 3
S602	EVQQS705G	SW, PROGRAM 2
S603	EVQQS705G	SW, PLOGRAM 1
S604	EVQQS705G	SW, INPUT SELECTOR
S605	EVQQS705G	SW, INPUT SELECTOR
S606	EVQQS705G	SW, PROGRAM 6
S607	EVQQS705G	SW, PROGRAM 5
S608	EVQQS705G	SW, PROGRAM 4
S609	EVQQS705G	SW, REPEAT
S610	EVQQS705G	SW, A-B REPEAT
S611	EVQQS705G	SW, PROGRAM 9
S612	EVQQS705G	SW, PROGRAM 8
S613	EVQQS705G	SW, PROGRAM 7
S614	EVQQS705G	SW, RESET
S615	EVQQS705G	SW, COUNTER MODE
S616	EVQQS705G	SW, MEMORY
S617	EVQQS705G	SW, CONTINUOUS MEMORY
S618	EVQQS705G	SW, PROGRAM 0
S619	EVQQS705G	SW, RECALL
S620	EVQQS705G	SW, AUTO
S621	EVQQS705G	SW, RENUMBER
S622	EVQQS705G	SW, SKIP ID/ERASE
S623	EVQQS705G	SW, START ID/ERASE
S624	EVQQS705G	SW, SKIP ID/WRITE
S625	EVQQS705G	SW, START ID/WRITE
S626	EVQQS705G	SW, INDEX
S627	EVQQS705G	SW, MUSIC SCAN
S628	EVQQS705G	SW, SKIP(F)
S629	EVQQS705G	SW, SKIP(R)
S630	EVQQS705G	SW, END SEARCH
S631	EVQQS705G	SW, AUTO REC MUTE
S632	EVQQS705G	SW, PAUSE
S633	EVQQS705G	SW, REC
S634	EVQQS705G	SW, FF/CUE
S635	EVQQS705G	SW, PLAY
S636	EVQQS705G	SW, STOP
S637	EVQQS705G	SW, REW/REV
S638	EVQQS705G	SW, OPEN/CLOSE
S639	SSS182	SW, TIMER SELECTOR
S701	SSS189	SW, SAMPLING FREQUENCY SELECTOR
S702	SSS190	SW, OUTPUT LEVEL SELECTOR
S703	SSS189	SW, FS SELECTOR
RELAYS		
RLY501	SFDYG5A237P	RELAY
RLY701	SFDYG5A237P	RELAY
RLY702	SFDYG5A237P	RELAY
RLY703	SFDYG5A237P	RELAY
RLY801	SFDYG5A237P	RELAY

Ref. No.	Part No.	Description
CABINET AND CHASSIS		
1	SBC666	BUTTON, POWER
2	RYP0005-1	FRONT PANEL ASS'Y
3	SKU11860-4	BOTTOM BOARD
4	RGR0005	ORNAMENT
6	SMN2069-1	BRACKET
7	SKL306	INSULATER
8	SHE36-3	LEAD HOLDER
9	SMN2072-1	BRACKET
10	SMC6462	SHIELD PLATE
12	SMC6464	SHIELD PLATE
13	SJVD05	JACK,SOCKET
14	SHR9804-1	HOLDER
15	SJJ143	JACK
16	SKCVD1100-KN	CABINET
17	SJJ144	JACK
18	QXA54645	ANGLE
19	SHR9775	PLASTIC SPACER
20	SBN1231	KNOB
21	SJSD5	SOCKET
22	SBN1232	KNOB
23	SHE185-1	HOLDER
24	SBN1161-2	KNOB
25	SMN2098-1	BRACKET
27	SHG1661	RUBBER SPACER
28	SHR327	PLASTIC SPACER
29	SGE1906E-1	CASSETTE LID
30	SHR9857	HOLDER
31	RMR0027-1	HOLDER
32	SBC1043	BUTTON
36	SHR9815	RIVET
37	XWC3B	WASHER
38	XNG3	NUT
39	XWG4	WASHER
40	XWE3D8	WASHER
41	SBC1002	BUTTON
42	SMN2097	BRACKET
43	SBC1004	BUTTON
44	SGX7944	ORNAMENT
45	SGX8011	HOLDER
46	SBD146	KNOB
48	SUS1008	SPRING
49	SUS1011	SPRING
50	XNS12	NUT
51	XNS7	NUT
52	SHR330	CLAMPER
53	SHR331	CLAMPER
54	SJT3013	CONNECTOR
54	SJT3213	CONNECTOR(2P)
54	SJT3319	CONNECTOR(3P)
54	SJT3415	CONNECTOR(4P)
54	SJT3511	CONNECTOR(5P)
54	SJT3809	CONNECTOR
55	SJT30543-V	CONNECTOR(5P)
55	SJT31043-V	CONNECTOR(10P)
56	SJT347	FUSE HOLDER
57	SJT777	FUSE HOLDER
58	SJF3057-7A	OUTPUT TERMINAL
59	SJT30741LX-H	CONNECTOR(7P)
60	SJT3417	TERMINAL(4P)
60	SJT3613	CONNECTOR(6P)
61	SMN2080	BRACKET
62	EMCS0354BL	CONNECTOR
62	EMCS0851ML	CONNECTOR
62	EMCS1050Z	CONNECTOR
62	EMCS1150Z	CONNECTOR
62	EMCS1250Z	CONNECTOR
62	EMCS1350Z	CONNECTOR
64	SJT3038	LUG TERMINAL
64	SJT3607	TERMINAL
65	SMC1249-1	SHIELD COVER
66	SMN2071-1	BRACKET
67	XNS8FZ	NUT
68	SMN2070	ANGLE

Ref. No.	Part No.	Description
69	SHR6078	HOLDER
70	SJJ126B	JACK(HEADPHONES)
71	SJJ142	JACK
72	RJP10G18ZA	PLUG
72	RJP11G18ZA	PLUG
72	RJP7G18ZA	PLUG
72	RJP8G18ZA	PLUG
72	RJP9G18ZA	PLUG
73	SJS5033	CONNECTOR(12P)
73	SJS5215	CONNECTOR(2P)
73	SJS5331	SOCKET(3P)
73	SJS5425	SOCKET(4P)
73	SJS5523	CONNECTOR(5P)
73	SJS5811	CONNECTOR(8P)
74	SJT783	TERMINAL
75	XNG26E	NUT
76	RMZ0008	SHEET
101	SGE1905-1	ORNAMENT
102	SMQ30049-1	ANGLE
103	SGE1904-1	ORNAMENT
104	SMN2062	ANGLE
105	SMN2063	ANGLE
106	SHG6408	RUBBER SPACER
107	SHR9849-1	HOLDER
108	SHR9850-1	HOLDER
109	SUS891	COIL SPRING
110	SUS877-2	SPRING
111	SUS878	SPRING
112	SUS879	SPRING
113	SMP419-1	LAMP HOLDER
114	EYH-S78A1	COMPONENT COMBINATION
115	SMN2064E-3	BRACKET
116	SMN2065E-4	BRACKET
117	SMN2066E	ANGLE
118	SHR9851	HOLDER
119	SHR9852	HOLDER
120	SMQ40030-1	GEAR
121	SMQ40031-2	GEAR
122	SMQ40032	GEAR
123	SMN2067	ANGLE
124	SMXVD1000-KN	MOTOR
125	SHR9854-3	COVER
126	SMQ20025	BELT
127	SRDSBSW97-2A	SW
128	XTB3+8J	SCREW
129	XTB26+8JFZ	SCREW
130	XYN26+F8FZ	SCREW
131	XTB2+6JFZ	SCREW
132	QHQ1188S	SCREW
133	XYN3+C4	SCREW
134	XYN2+C6FZ	SCREW
135	XQN2+A25FZ	SCREW
136	SHE36-3	LEAD HOLDER
201	SNE2095-5	SCREW
202	XTB3+8JFR	SCREW
203	XTW3+6T	SCREW
204	XTS3+8FFZ	SCREW
205	XTS3+8F	SCREW
206	XSN26+6FN	SCREW
207	XYN26+C5FZ	SCREW
208	XTBS3+8FFZ1	TAPPING SCREW
209	SHD3X21F-1	DIAL PULLEY SHAFT
210	XTB3+16JFR	SCREW
211	XTW3+6T	SCREW
212	XTBS3+8JFZ1	SCREW
213	XYN26+C5FZ	SCREW
214	XTW3+8T	SCREW
216	XTB26+8J	SCREW
217	XTB26+8JFZ	SCREW
218	XTB26+8JFR	SCREW
220	XTB26+10JFR	SCREW
223	XTB26+10J	SCREW
225	XYA2+CJ6	SCREW

EXPLODED VIEWS

• Cabinet and chassis parts


212
201
212
201
16
201
201
212
VOLTAGE SELECTOR (S2)
211
211
POWER TRANSFORMER P.C.B.
57
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210
POWER SUPPLY P.C.B.
214
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RF P.C.B.
SUB SERVO P.C.B.
220
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220
216
68
69
PANEL CONTROL P.C.B.
44
202
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212
8
214
58
61
212
210
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210
10
AUDIO P.C.B.
36
9
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210
210
SIGNAL PROCESSING/ SYSTEM CONTROL/ MAIN SERVO P.C.B.
65
P.B. CLOCK P.C.B.
14
INPUT/OUTPUT P.C.B.
14
14
14×2
204
13
204
INTERFACE P.C.B.
6
12
8
212
212
REMOTE CONTROL P.C.B.
205
202
38
71
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202
3
FS SELECTOR P.C.B.
220
216
220
220
212
19
208
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212
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207
15
4
OUTPUT LEVEL SELECTOR P.C.B.
212
206
15
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203
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203
75
37
207
SAMPLING FREQUENCY SELECTOR P.C.B.
TIMER SWITCH P.C.B.
220
HEADPHONES P.C.B.
223
223
223
45
70
51
50
24
46
POWER SWITCH P.C.B.
202
76
36
220
52
220
53
220
48
220
SKIP KEY P.C.B.
225
205
41
205
205
217
217
43
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218
FUNCTION KEY P.C.B.
216
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216
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32
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212
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212
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212
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REC LEVEL & BALANCE CONTROL P.C.B.
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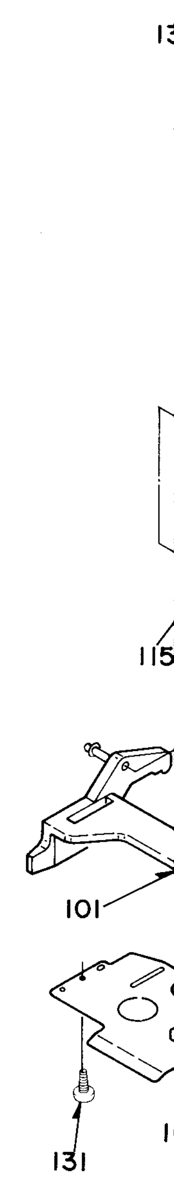
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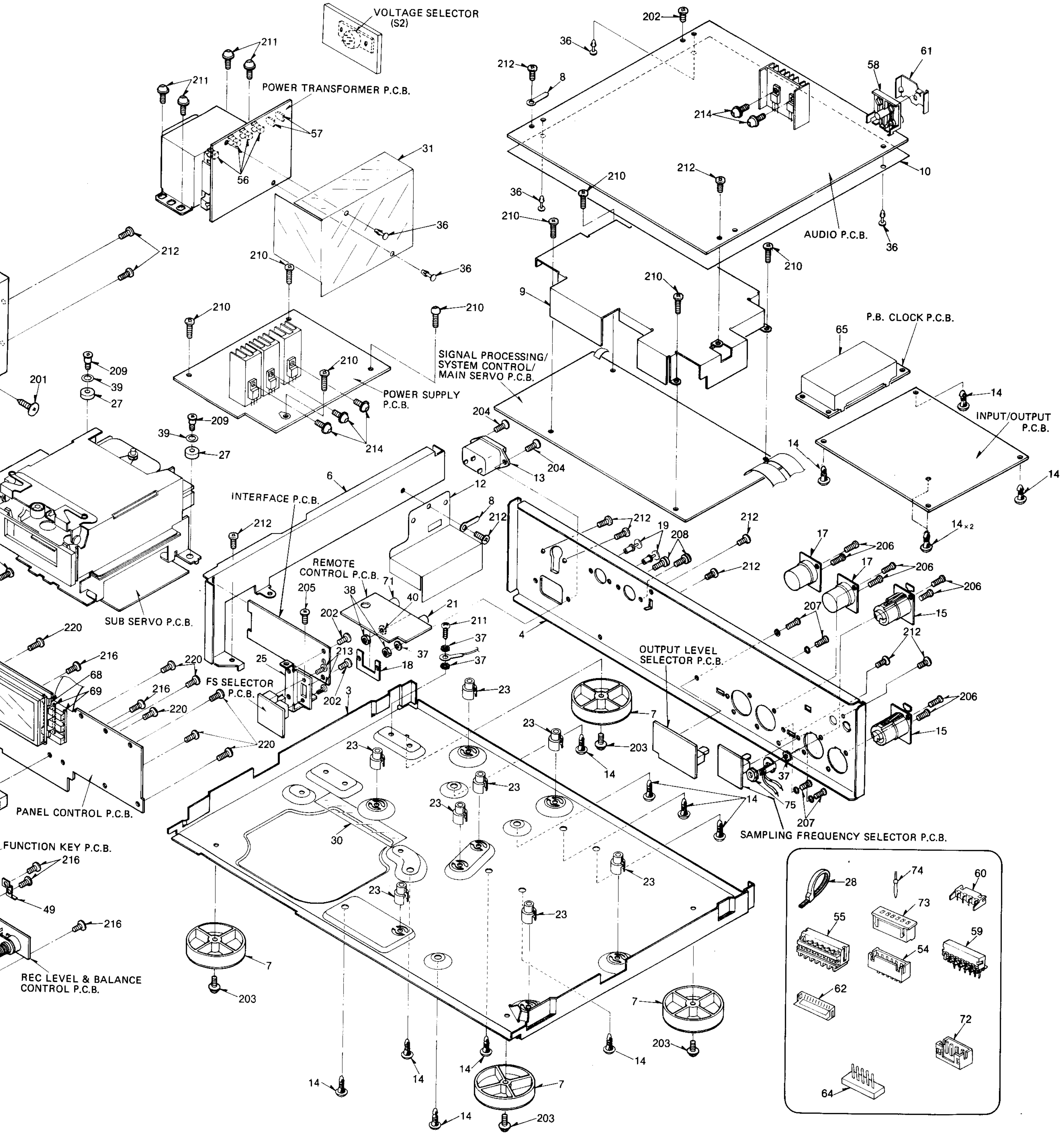
VOLTAGE SELECTOR (S2)
POWER TRANSFORMER P.C.B.
AUDIO P.C.B.
P.B. CLOCK P.C.B.
SIGNAL PROCESSING/ SYSTEM CONTROL/ MAIN SERVO P.C.B.
POWER SUPPLY P.C.B.
INPUT/OUTPUT P.C.B.
INTERFACE P.C.B.
REMOTE CONTROL P.C.B.
SUB SERVO P.C.B.
FS SELECTOR P.C.B.
OUTPUT LEVEL SELECTOR P.C.B.
PANEL CONTROL P.C.B.
FUNCTION KEY P.C.B.
REC LEVEL & BALANCE CONTROL P.C.B.
SAMPLING FREQUENCY SELECTOR P.C.B.
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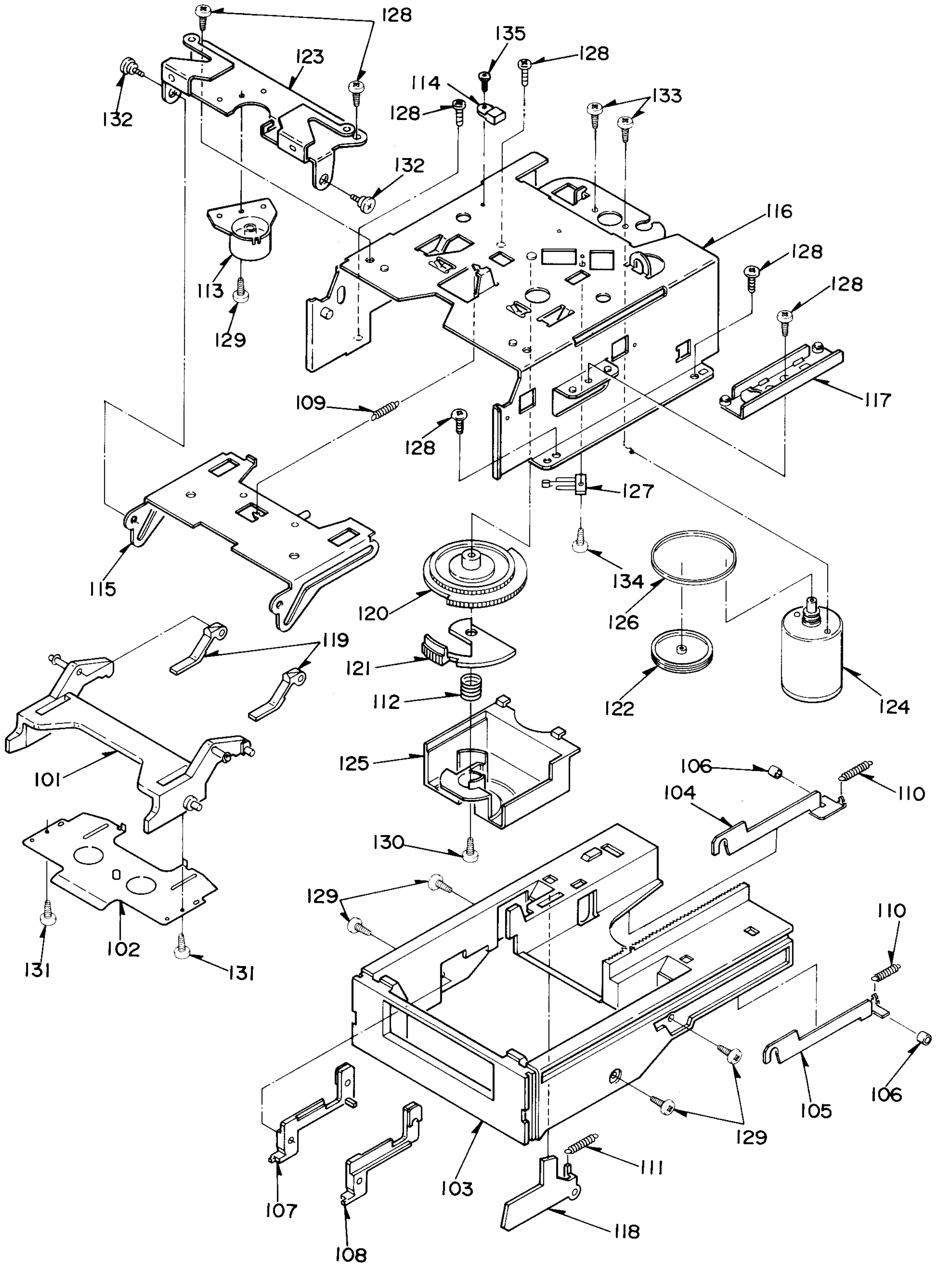
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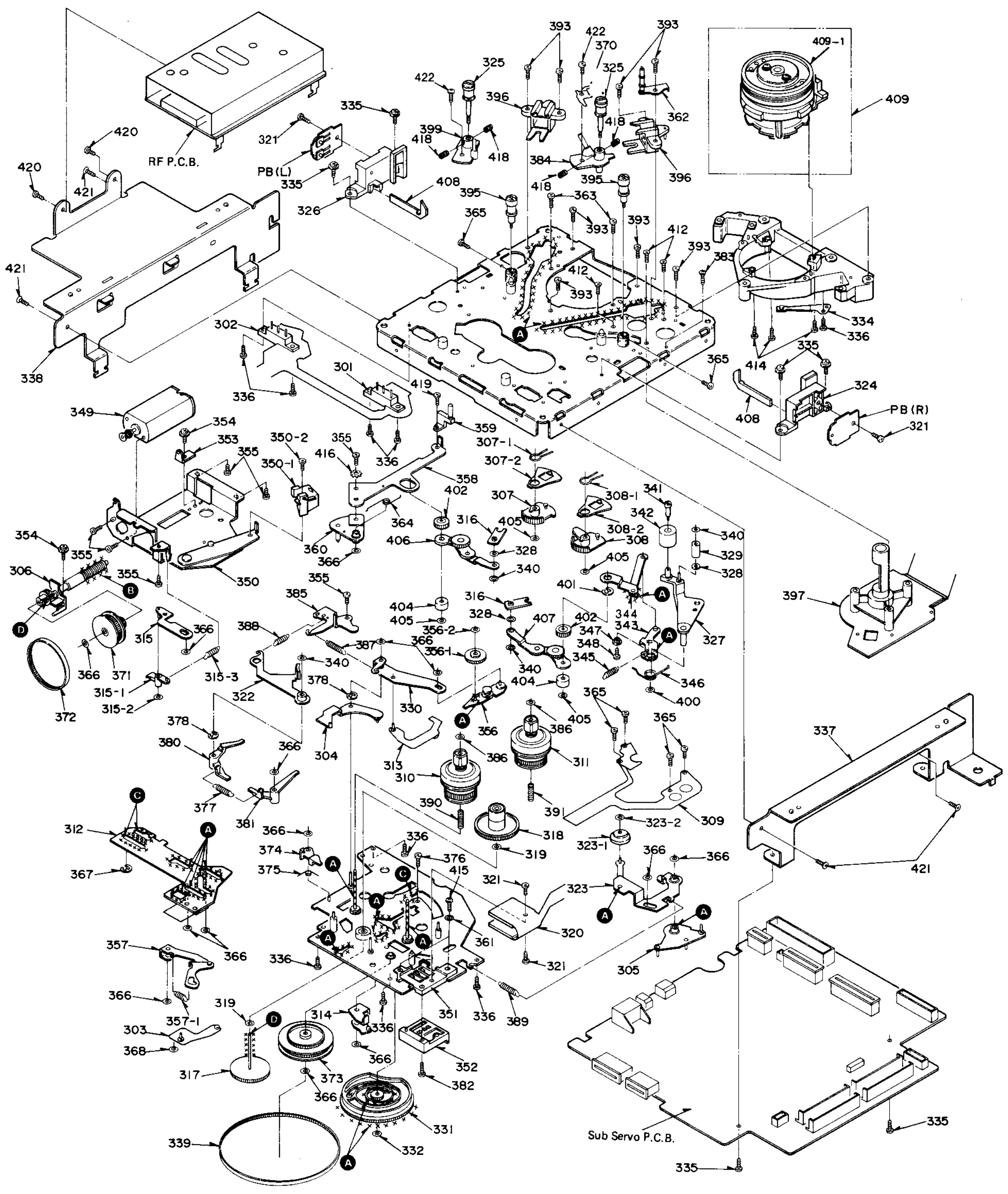
■ REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description
DECK		
CASSETTE DECK		
301	EVQWR2002	V.R
302	EVQWR2001	V.R
303	1NL0018ZA	ARM
304	1NL0019ZA	LEVER
305	1NL0026ZA	ARM
306	1NM0005ZA	HOLDER
307	1NG0006ZA	GEAR
307-1	RUW100ZA	SPRING
307-2	RNG61ZA	GEAR
308	1NG0005ZA	GEAR
308-1	RUW100ZA	SPRING
308-2	RNG60ZA	GEAR
309	1UP0050ZA	REEL FG FPC
310	1DM0014ZA	REEL TABLE
311	1DM0015ZA	REEL TABLE
312	1NR0025ZA	PLATE
313	1NL0022ZA	ARM
314	1NL0021ZA	ARM
315	1NL0020ZA	ARM
315-1	RUB463ZA	SHAFT
315-2	QBW2008	WASHER
315-3	RUD63ZA	SPRING
316	1UL0033ZA	GUIDE
317	1NG0008ZA	GEAR
318	1NG0007ZA	GEAR
319	QBK92059	WASHER
320	1UP0051ZA	PC.BOARD W/COMPONENT
321	XQN2+AJ4	SCREW
322	1NL0016ZA	LEVER
323	1NL0025ZA	ARM
323-1	RDI9002ZA	ROLLER
323-2	QBW2008	WASHER
324	RME422ZB	HOLDER
325	1DR0015ZA	ROLLER
326	RME421ZB	HOLDER
327	1NL0014ZA	ARM
328	QBW2010	WASHER
329	RDR95ZA	ROLLER
330	RNL69ZB	ARM
331	RDG5936ZA	CAM GEAR
332	QBW2012	WASHER
334	RUS761ZA	LEAF SPRING
335	XSN2+W4	SCREW
336	XQN2+A3	SCREW
337	RUL1062ZA	LEVER
338	RUL1061ZA	LEVER
339	RDV60ZB	ANGULAR BELT
340	QBW2030	WASHER
341	RNN139ZA	SHAFT
342	1NB0001ZA	ROLLER
343	1NL0028ZA	LEVER
344	1NL0029ZA	LEVER
345	RUD66ZA	SPRING
346	RUW99ZA	SPRING
347	RNN143ZA	SHAFT
348	XQN16+C45	SCREW
349	1JQ0012ZA	DC MOTOR
350	1NL0015ZA	ARM
350-1	RHR1324ZA	PLASTIC SPACER
350-2	XQN16+C6	SCREW
351	RME419ZA	HOLDER
352	RME420ZA	HOLDER
353	RNM8ZA	BEARING METAL
354	XYN2+C4	SCREW
355	XQN2+A25	SCREW
356	1HR0004ZA	PLATE
356-1	RNG53ZA	GEAR
356-2	QBW2008	WASHER
357	1NL0017ZA	ARM
357-1	RUD62ZB	SPRING
358	RNL98ZB	LEVER
359	RUBVD1000-KN	SHAFT
360	RULVD1000-KN	ANGLE
361	XWE2	WASHER
362	1UL0043ZA	BRACKET
363	XQN16+A3	SCREW
364	RUW116ZA	SPRING
365	XQN16+A2	SCREW
366	QBW2008	WASHER
367	XUC15FT	E-RING
368	RNW216ZA	WASHER
370	RUL876ZA	LEVER
371	RDR9012ZA	PULLEY
372	RDV59ZA	ANGULAR BELT
373	RDR9013ZA	PULLEY
374	RUB462ZA	SHAFT
375	RUW98ZA	SPRING
376	RHE5123YA	SCREW
377	RUD60ZA	SPRING
378	XUC2FT	E-RING
380	RNL64ZA	ARM
381	RNL63ZA	ARM
382	XQN16+CJ8	SCREW
383	XQN2+A8FN	SCREW
384	1UG0002ZA	PLATE
385	RUL924ZA	BRACKET
386	RNW172ZA	WASHER
387	RUD64ZA	SPRING
388	RUD61ZC	SPRING
389	RUD65ZA	SPRING
390	RUQ56ZA	SPRING
391	RUQ55ZA	SPRING
393	XQN2+C6	SCREW
395	1DR0005ZA	ROLLER
396	1MD0020ZA	SPACER
397	DVX32D2LA	DD MOTOR
399	1UG0001ZA	PLATE
400	RNW240ZA	WASHER
401	XUC25FT	WASHER
402	RNG63ZA	GEAR
404	RDE171ZA	SPACER
405	QBW2007	WASHER
406	1NL0030ZA	LEVER
407	1NL0031ZA	LEVER
408	RHR1328ZA	PLASTIC SPACER
409	VEG0605	HEAD
409-1	VEH0389-SER	UPPER HEAD
412	XQS2+A4	SCREW
414	XQN16+A45T	SCREW
415	XQN2+A35	SCREW
416	XWC2B	WASHER
418	XXER0001ZA	SCREW
419	XQN16+C3	SCREW
420	XSN26+3	SCREW
421	XTS26+6F	SCREW
422	XQN16+C25FZ	SCREW

■EXPLODED VIEWS

• chassis parts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Sub Servo P.C.B.
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NOTES:

- When changing mechanism parts, apply the specified grease to the are marked "XX" shown in the drawing "Mechanical Parts Location".

Ref. No.	Part No.
Ⓐ	RZZ0L05
Ⓑ	SZZ0L25
Ⓒ	RZZ0L06
Ⓓ	RZZ0L02

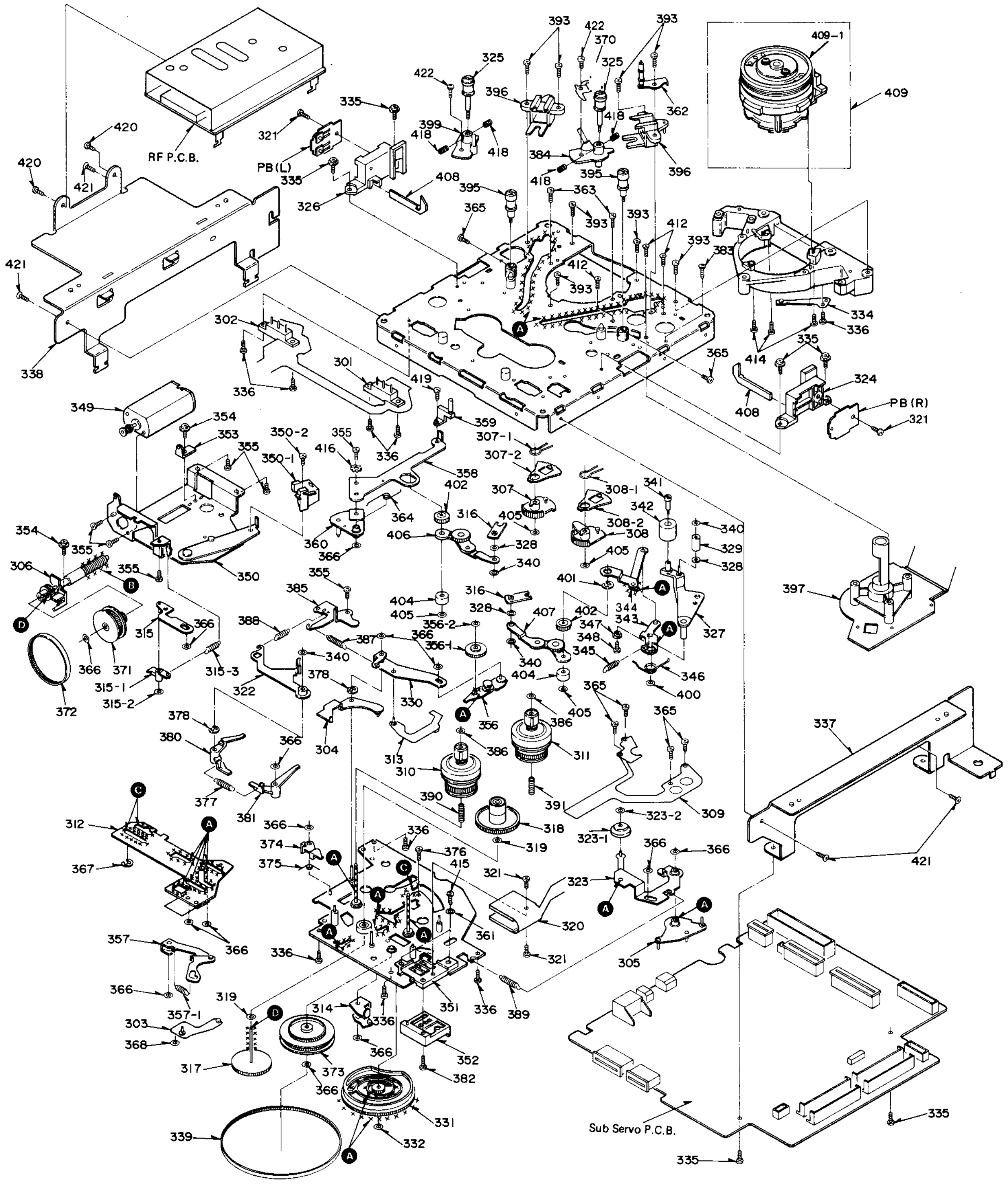
■ REPLACEM

Notes : * Important safety
Components ide
manufacturer's
* Bracketed indic
Parts without th
* Remote Control
Supply period f

Ref. No.	Part No
PACKING MATERIAL	
P1	SPG6451
P2	SPS5079-1
P3	SPS5080-1
P4	SPP723
P5	SPS5282
P6	SPS5301
P7	XZB23X35C
P8	XZB09X10C

EXPLODED VIEWS

• chassis parts



NOTES:

- When changing mechanism parts, apply the specified grease to the are marked "XX" shown in the drawing "Mechanical Parts Location".

Ref. No.	Part No.
Ⓐ	RZZ0L05
Ⓑ	SZZ0L25
Ⓒ	RZZ0L06
Ⓓ	RZZ0L02

REPLACEMENT PARTS LIST

Notes : * Important safety notice :
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Bracketed indications in Ref. No. columns specify the area. (Refer to the first page for area.)
Parts without these indications can be used for all areas.
* Remote Control Ass'y:
Supply period for three years from termination of production.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
PACKING MATERIAL			ACCESSORIES		
P1	SPG6451	CARTON BOX	A1	SQF13425	INSTRUCTION MANUAL
P2	SPS5079-1	PAD	A2	SJPD19-1E	CORD
P3	SPS5080-1	PAD	A3 ⚠	SJAD5	POWER CORD
P4	SPP723	PROTECTION COVER	A4	SMN2090	BRACKET
P5	SPS5282	PAD	A5	SMN2091	BRACKET
P6	SPS5301	PAD	A6	XYN3+F10FZ	SCREW
P7	XZB23X35C03	PROTECTION BAG	A7	SSE44	REMOTE CONTROL
P8	XZB09X10C03	PROTECTION COVER	A8	SMN2092	BRACKET
			A9	SMN2105	BRACKET

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